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ABSTRACT

This report on education standards considers national educational reform, New Hampshire initiatives, and implications of education standards for students with special needs. Included is information on national curriculum standards projects for mathematics, art, history, civics and government, geography, English and foreign languages, economics, and science. New Hampshire curriculum frameworks are discussed, and suggestions are offered for implementation by school districts. Information is also provided on the New Hampshire Educational Assessment Program, which includes performance-based testing. In considering students with special needs, topics include: how schools can include students with varying functional needs in a standards-based framework, what instructional methods are needed for including students with diverse needs in a standards-based curriculum framework, using individualized education plans to support the use of education standards for students with disabilities, the use of performance standards for students with disabilities, and accommodations during assessment. Also considered are curriculum frameworks developed by the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) and the National Center on Educational Outcomes. Appendices include a glossary and list of resource groups. (Contains 77 references and 9 figures.) (SW)

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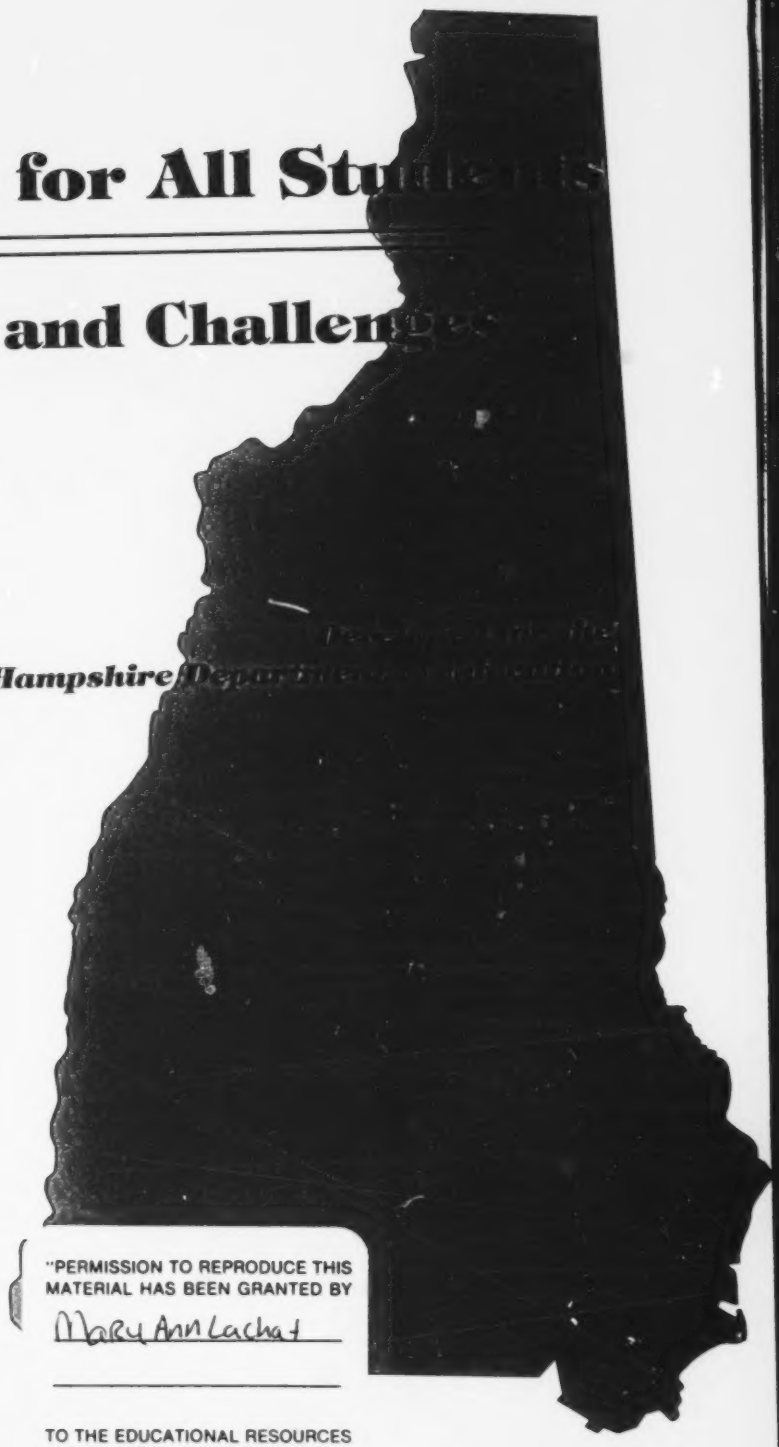

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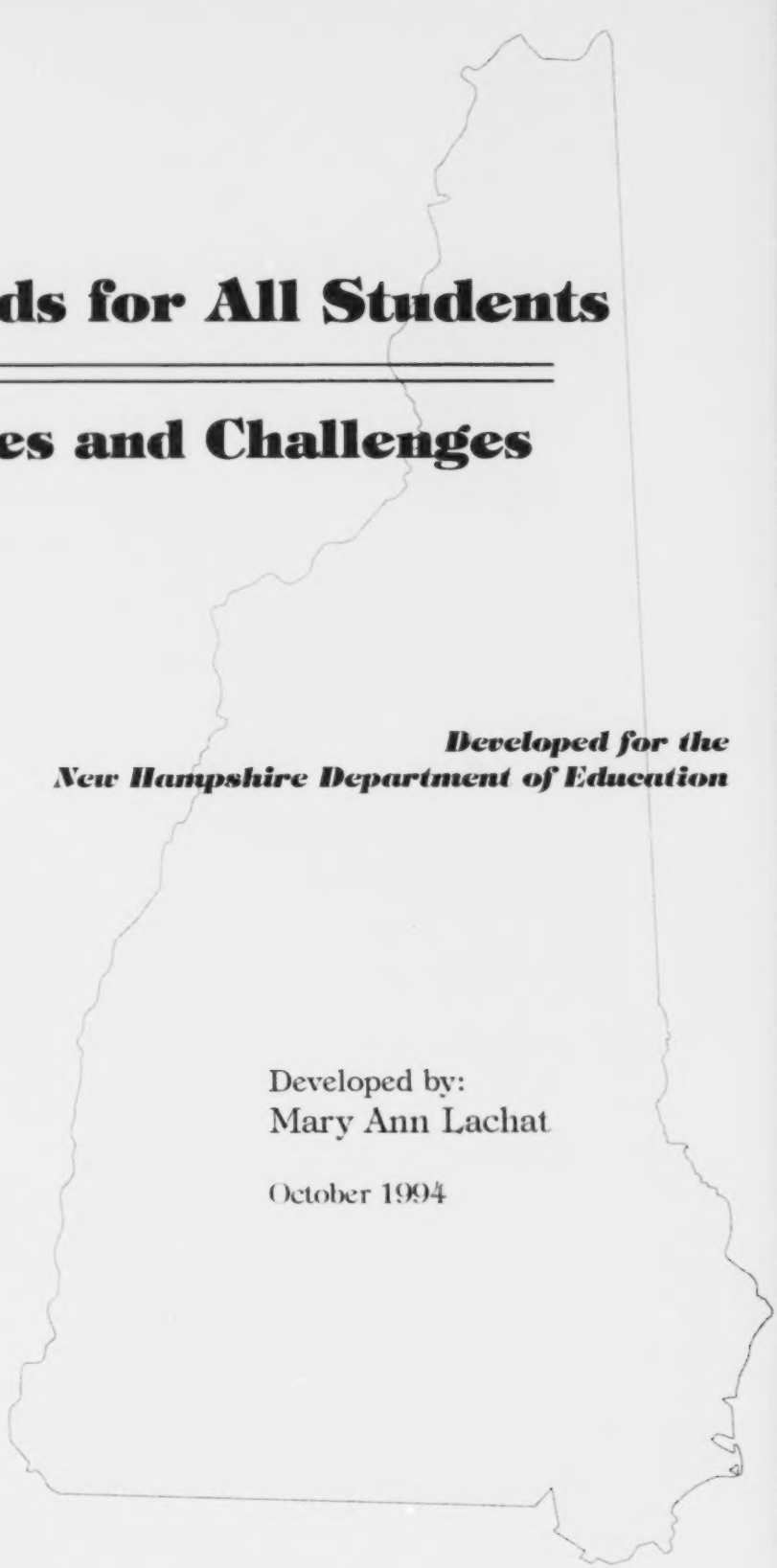

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Developed by:
Mary Ann Lachat

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CRM CENTER FOR RESOURCE MANAGEMENT
2 Highland Road • South Hampton, NH 03827-3607 • (603) 394-7040 (Voice/TDD) • (603) 394-7483 (Fax)
59 School Street • Concord, NH 03301-3930 • (603) 225-8929 (Voice) • (603) 224-1607 (Fax)

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PREFACE

In New Hampshire and across the nation, new demands are being made of our education system because of emerging requirements for what American students must know and be able to do to participate in today's society. Because we want our graduates to be able to take their place in society, we have had to develop new understanding about how to raise student achievement and prepare young people for productive lives in the 21st century. The foundation for the Department of Education's efforts to forward the cause of quality education for all children in the state is the New Hampshire Education Improvement and Assessment Program (NHEIAP). Planning for this program began in 1989 when the State Board of Education adopted the goal of developing an educational improvement and accountability system as one of its top priorities for educational reform in New Hampshire.

NHEIAP is based on challenging standards that define what children should know and be able to do at the completion of different levels of their education. The program includes two major components: Curriculum Frameworks that define standards for learning in English/language arts, mathematics, science, and social studies; and a statewide assessment program based on the standards defined in the frameworks.

Defining education standards that represent clear and shared goals for education is a major step forward for New Hampshire. The standards in the Curriculum Frameworks were created over a two-year period by teachers, administrators, parents, business people, community leaders, and policymakers working together to define what students should know and be able to do. These standards provide direction and clarity about the quality of learning that will ensure that New Hampshire students are prepared to live and work in the 21st century. The statewide program gives all of us an exciting opportunity to enable our students to achieve at higher levels, improve curricula and instruction, and to produce an accountability system for parents and citizens concerning the academic achievement of our children.

We know that designing and developing the statewide program is only the first step. School districts across the state will need information and assistance that supports the implementation of quality education for all students. This publication, *High Standards for All Students: Opportunities and Challenges,* was produced as a resource that can be used at the local level to develop awareness and shared understandings about today's goals for educational improvement among administrators, teachers, parents, school board members, and others. It describes why new standards for learning are necessary for *all* students and what the opportunities and challenges will be as we move forward to improve student achievement and the quality of instruction in our schools.

Elizabeth Twomey, Commissioner
NH Department of Education

ACKNOWLEDGEMENTS

High Standards for All Students: Opportunities and Challenges is the result of many people's ideas and support. Guiding its development from the beginning were Robert T. Kennedy, Director of the Division of Educational Improvement, NH Department of Education, and Harvey Harkness, Administrator for the Program Quality Assurance Bureau. They foresaw the need to provide comprehensive information on the purposes and uses of standards to the regular and special educators collaborating on educational reform initiatives across the state. The development of this publication was also enriched by the perspectives of an advisory panel who reviewed draft sections and provided detailed and meaningful recommendations. Their contributions were invaluable and they deserve special acknowledgement.

Panel members from the NH Department of Education were: William Ewert, who played an active role in the development of the NH Education Improvement and Assessment Program, and is the Administrator for the Commissioner's Governance and Grants Development Bureau; David Gebhardt, Program Quality Assurance Bureau with responsibilities related to the National Assessment of Education Progress; Dorothy Fair, Effective Programs and Instructional Practice Bureau, responsible for Chapter 1; Rachel Hopkins, Professional Standards Development Bureau with responsibilities related to higher education; Nathan Norris, Early Learning Bureau and Special Education team leader; and Joan Schwartz, Administrator for the Research and Innovation Bureau.

Providing important perspectives on the issues felt by special educators were: Carol Kosnitsky, Director of Special Education for SAU 30 and President of the Special Education Administrators Association; Mary Ann Labrecque, Director of Special Education Services for SAU 26; Sandra Plocharczyk, Director of Special Education for SAU 28 and Vice President of the New Hampshire Association of Special Education Administrators; and Douglas Cheney, Director, Institute on Emotional Disabilities, Keene State College.

Other advisors who provided many insights about the opportunities and challenges felt by local districts and local communities were: Molly Allen and Barbara Getman, parent representatives; Patricia Fair, President of Fairhaven Associates, member of NH Business Roundtable on Education, and former NH legislator; Maureen Kelley, Director, NH Alliance for Effective Schools and former President of the NH School Boards Association; and John Powers, Superintendent of SAU 5, Oyster River Cooperative and President of the NH School Administrators Association.

Finally, special thanks goes to my colleagues at CRM: Martha Williams for her ongoing perspectives and ideas, and Martha Cray-Andrews for her many contributions to the document and her assistance in incorporating the recommendations of the advisory panel.

Mary Ann Lachat, President
Center for Resource Management, Inc.
October, 1994

INTRODUCTION

Education reform initiatives across the nation are creating new standards for learning that define what students should know and be able to do to live and work in the 21st century. These reform efforts consistently emphasize that *education standards are meant for all students.* In the *Goals 2000: Educate America Act*, we see a national commitment to educate our nation's children to be effective thinkers, problem-solvers, and communicators so they can participate as members of the global community, and this commitment extends to all children. In New Hampshire, this commitment is reflected in the goals of the NH Education Improvement and Assessment Program.

A commitment to high standards of learning for *all* students offers great opportunities and presents great challenges to those who have a stake in both excellence and equity in education. It is founded on the belief that it is in the national interest to educate all children and youth to their full potential. It shifts from an emphasis on the processes of schooling to a focus on the desired results of education.

The movement to raise standards of achievement for *all* students is intended to break the cycle of failure experienced by so many of America's students, including those with disabilities. However, while the National Education Goals have been projected for *all* students, the data collection systems used to monitor progress on the goals have excluded many students in today's schools. Furthermore, there is a need for direction and guidance on how standards can be used to enhance learning for students with wide-ranging needs, abilities, and talents. In its 1992 Report to Congress, *Raising Standards in American Education*, the National Council on Education Standards and Testing did not address the issue of how the needs of students with disabilities would be accommodated in the development of national standards in the various academic areas, and several national groups are underscoring the need for broader collaboration and consensus about how to make high standards work for all students. Educators, parents, and advocates are stressing that attention must be given to *how* diverse student populations will meet the standards.

This publication discusses both the opportunities and challenges of education standards and quality learning for *all*. The first three chapters answer key questions about education reform at the national

level and here in New Hampshire, and the implications of education standards for students with special needs. The final chapters provide information on the accomplishments of the national curriculum standards projects. While the momentum to create the publication came from questions and issues raised by special educators, it is meant to be used by all audiences who share both hopes and concerns about how new expectations for learning and achievement will impact on students, teachers, and schools in New Hampshire.

Robert T. Kennedy, Director
Division of Educational Improvement
NH Department of Education

EDUCATION STANDARDS FOR AMERICA'S SCHOOLS

> *"When we do not hold all students to high academic standards, the results can be low achievement and the tragedy of children leaving school without ever having been challenged to fulfill their potential."* Secretary of Labor's Commission on Achieving Necessary Skills (SCANS), 1991

Establishing high standards of learning for *all* students in America is the centerpiece of a national agenda to improve schools and the foundation of public policies emphasizing standards-based reform. Based on widespread recognition that today's world requires many skills that are not being taught in schools, reform efforts are defining the education standards essential for all students in a highly complex, technological society. New coalitions of educators, business leaders, community and parent representatives, policymakers, and legislators are focusing on how schools can raise the level of student achievement, and state policy-making bodies are developing curricular frameworks and new assessment systems to measure student performance. In New Hampshire, the movement to define a new vision of learning and achievement for schools in the state is reflected in the curriculum frameworks and assessment system of the New Hampshire Education Improvement and Assessment Program.

The idea of national and state education standards has moved to the top of the reform agenda with amazing speed. In 1989, President Bush and the nation's governors set National Education Goals to raise the level of student learning and achievement in America's schools to ensure that the United States would remain competitive in the world marketplace. Today, the National Education Goals have been codified into law under the *Goals 2000: Educate America Act*, with two additional goals that focus on (1) teacher education and professional development, and (2) parent participation. The National Education Goals and the purpose of the Act are depicted in Figure 1.

The standards movement is intended to improve the quality of learning and teaching in America's schools through the development and use of education standards representing high levels of achievement for *all* American students. Touching upon every aspect of the education system, the movement to establish education standards is sweeping in its intent, and is challenging long-held assumptions about how education should be conducted in our nation's schools. Driven by a belief that the education system must change to reflect the realities of today's society, school reform is widely endorsed by leaders in the education and business communities.

FIGURE 1

GOALS 2000: EDUCATE AMERICA ACT
NATIONAL EDUCATION GOALS AND PURPOSES OF THE ACT

NATIONAL EDUCATION GOALS	PURPOSES OF THE ACT
By the year 2000:	Provide a framework for meeting the National Education Goals by:
1. All children will start school ready to learn;	Promoting coherent, nationwide, systemic education reform;
2. The high school graduation rate will be at least 90%;	Improving the quality of learning and teaching in the classroom and workplace;
3. All students will leave grades 4, 8, and 12 competent for their level in English, math, science, foreign languages, civics and government, economics, arts, history and geography, and the capacity to use their minds well for responsible citizenship, further learning, and productive employment in our nation's modern economy;	Defining appropriate and coherent federal, state, and local roles and responsibilities for education reform and lifelong learning;
4. The nation's teaching force will have access to professional inservice training programs;	Establishing valid, reliable, and fair mechanisms for building a broad consensus on American education reform; assisting in the development and certification of high-quality content and performance standards and opportunity-to-learn standards; and the development of assessment measures that reflect the content and performance standards;
5. United States' students will be first in the world in math and science achievement;	Supporting new initiatives to provide equal education opportunity for all students to meet high standards;
6. Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship;	Providing a framework for the reauthorization of all federal education programs;
7. Every school will be free of drugs, violence, and the unauthorized presence of firearms and alcohol, and will offer a disciplined environment conducive to learning; and	Stimulating development and adoption of a voluntary national system of skill standards and certifications to enhance workforce skills; and
8. Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.	Assisting schools that receive federal funds to actively involve parents and families.

(*Goals 2000: Educate America Act,* 1994)

For the educators, parents, and community members who must respond to the challenges it presents, the standards movement has raised many questions and concerns ranging from why standards should be developed in the first place to how schools and communities can make the transition to standards-based education. This chapter covers many of the major questions raised about education standards and the issues that accompany standards-based reform.

1. Why Are Education Standards Being Developed?

Education standards are being developed to identify what all students should know and be able to do to live and work in the 21st century and to ensure that schools provide the opportunity for all students to learn at high levels. Because American education has never had national standards, there was no nationwide consensus on what all students should learn. Today, however, educators, business leaders, legislators, and others agree that *the improvement of American education must start with consensus about what all students should learn* (U.S. Department of Education, 1994). The development of national education standards has been driven by rapid changes in the American economy and workforce which have focused attention on the need to raise the level of student achievement in the nation's schools.

> ◆ *"All American high school students must develop a new set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life." (SCANS, 1991)*

The Economic Mandate for Standards

The shift from an industrial to an information-based economy has left many American workers without the skills to succeed and created an economic mandate to define new standards for learning in American schools. For example, more than half of the new jobs created in this decade will require education beyond high school, and 90 percent will require at least a high school education (Hudson Institute, 1987). Many studies and reports have concluded that unless educational performance in the United States improves dramatically, American workers will be unable to use the new technologies that will create most of the world's jobs and economic growth in the next century.

The average high school completion rate in the nation's schools hovers around 75%; students with a diploma are not necessarily literate; and many of those who enter college or the workforce are not prepared to meet the increasing demands of a rapidly-changing, technology-driven marketplace.

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Business leaders fear that the majority of American students are not prepared to compete in the global economy, and colleges and universities find many students unprepared for advanced study.

In 1991, the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) concluded that "all American high school students must develop a new set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life," and that the nation's schools must be transformed into high-performance organizations "relentlessly committed to producing skilled graduates as the norm, not the exception" (SCANS, 1991).

> *This will require transforming the practices of schooling and having educators and the public agree on new objectives for learning and new ways of teaching and studying. It will also require developing widely understood standards of performance as well as new assessments to measure their attainment.* (SCANS, 1991)

Today's workplace already requires individuals to understand multidimensional problems, design solutions, plan their own tasks, evaluate results, and work cooperatively with others. Education and business leaders have thus concluded that while America's education system once served the needs of an industrial society well, the technology-driven information age demands a very different approach to education (Darling-Hammond et al., 1993).

The Education Mandate for Standards

American education has never had national standards, and the lack of agreement about what students should learn in the nation's schools has contributed to lower achievement for many students who leave school without ever having been challenged to their full potential. In addition, schools are not teaching many of the skills that will prepare students to live and work in the 21st century.

◆ *Establishing high standards for all students means that schools will aim for higher levels of learning for every student.*

Reports issued by the National Education Goals Panel provide strong testimony that without well-defined and demanding standards, American education has gravitated toward "*de facto* national minimum expectations." These reports underscore the fact that "most students in this country are still taught unchallenging curriculum and are not aware of what they should be aiming for in their studies." Further, "parents, teachers, and the broader general public remain largely ignorant about what they

should expect students to know and do as a result of their education" (National Education Goals Panel, 1993).

> *For the most part, the American education system has succeeded in preparing generations of students from diverse backgrounds for a place in American society. Where it did not, the economy had a place for people who were willing to work hard even without the skills of formal schooling. In this process, expectations varied from school to school and student to student, but the job got done. Now the job has changed. The demands of today's society are different. We need graduates who can compete in the global economy. We need adults who can use the knowledge and skills they acquire in school to deal with the complex issues of their own communities and of the world.* (National Education Goals Panel, 1993)

It is hoped that standards will help state officials, local educators, parents, and others agree on what students should learn and create a concrete vision of academic success for all students in America's schools.

2. Why Does The Standards Movement Emphasize High Standards For ALL Students?

Education standards are intended to ensure that schools provide opportunities for all students to learn at high levels. The standards movement emphasizes that *"all" means "all"* and that schools are accountable for the education of all students. Establishing high standards for all students means that schools will aim for higher levels of learning for every student. "When we do not hold all students to high academic standards, the result can be low achievement and the tragedy of children leaving school without ever having been challenged to fulfill their potential" (U.S. Department of Education, 1994).

> *To fulfill the old promise of American education—that students will be prepared to take their place in society—requires a new level of performance for the system, and a new level of effort at reform . . . . Standards-based reform seeks to establish clear attainable standards at internationally competitive levels for the entire student population. This represents a new way of thinking—a paradigm shift—about American students. It raises our expectations for every student in every school, not just some students in some schools.* (National Education Goals Panel, 1993)

Creating high standards for all is based on the belief that expectations for the vast majority of children in America's schools have been far too low. "Students who have been traditionally allowed

◆ *The call for improvement in America's schools is not new, but the emphasis on high standards for all students is.*

to fail must be helped to succeed, and many more must become not just minimally schooled, but highly proficient and inventive" (Darling-Hammond et al., 1993). The call for improvement in America's schools is not new, but the emphasis on high standards for *all* students is. More than ever before in our nation's history, policymakers and the public are recognizing that educational failure and undeveloped human talent are permanent drains on society. Creating high standards for education shifts the emphasis from access for all to high-quality learning for all. It is hoped that education standards will "raise the ceiling for students who are currently above average, and lift the floor for those who now experience the least success in school, *including those with special needs"* (National Council on Education Standards and Testing, 1992).

3. What Do We Mean By Education Standards?

At the national level, three types of education standards have been proposed: content standards, performance standards, and opportunity-to-learn standards.

Content Standards define what children should know and be able to do. They describe the knowledge, skills, and understandings students should have in particular subject areas in order to attain high levels of competency. Content standards provide guidelines for what schools should teach to ensure that all students are prepared to live and work in the 21st century.

Performance Standards identify the levels a student can achieve in the subject matter defined in the content standards. They set specific expectations for student performance and various levels of proficiency.[1]

Opportunity-to-Learn Standards refer to the conditions in schools that enable all students to have a fair opportunity to achieve the knowledge, skills, and understandings set out in the content standards. They address such areas as curriculum, instruction, assessment, technology and other resources, a safe environment, and professional development.

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[1] *In the New Hampshire Education Improvement and Assessment Program, performance standards are referred to as "proficiency standards."*

4. How Are the National Content Standards Being Developed?

National standards are being developed through an inclusive process of discussion and feedback involving thousands of teachers, scholars, administrators, parents, community leaders, and other members of the public. The standards are viewed as dynamic, not fixed, and they will be continually improved over time. Goals 2000 authorizes an 18-member bipartisan National Education Goals Panel to promote the development of national content standards as well as a 19-member National Education Standards and Assessment Council to develop criteria for certifying that these standards are both challenging and consistent with the best knowledge about teaching and learning. In addition, the Council must ensure that the criteria have been developed with broad input from educators and others. A number of national professional and subject-matter groups are spearheading efforts to set academic standards for their own disciplines, and to date the U.S. Department of Education has funded national standards projects in the arts, civics, English, foreign languages, geography, history, and science. Chapter 4 identifies the various groups developing standards and discusses common themes across these projects and differences in their approaches.

5. What Is the Debate About National Education Standards?

The movement to establish education standards is proving to be both powerful and provocative; the topic is far too complex and controversial to expect even natural allies to agree on all points (Wolk, 1992). Following is a summary listing of some of the benefits that have been ascribed to the use of standards as well as some of the major concerns and issues that have been raised about their development and use.

Proposed Benefits of Education Standards

Education Standards will:

- Enable the nation's education system to reach consensus on the purposes of education.
- Provide clarity about what students should know and be able to do.
- Create a concrete vision of success for all students.
- Raise the achievement level of American students.

- Prepare students to live and work in the 21st century.
- Reduce inequities in students' opportunities to learn and perform at high levels.
- Overcome the low expectations set for so many students.
- Create a connection between what and how students learn in school and how they will be expected to perform in adult life.
- Provide schools with clear and consistent guidelines about what should be taught in the various subject areas based on broad consensus within each of the subject fields.
- Help transform schools from institutions based on the industrial model to learning communities attuned to the requirements and possibilities of the information/technology age.
- Promote coherence and consistency in the quality of education provided in America's schools.
- Lead to instructional programs and methods that emphasize the essential skills of reasoning and problem solving.
- Lead to the development of assessment methods that measure what students actually know and are able to do at high levels.
- Promote the integration of curriculum, instruction, and assessment.
- Act as an incentive for students, teachers, and schools to achieve higher educational standards.
- Reinforce the important role of teachers in the learning process and contribute to higher professional standards.

(National Center on Educational Outcomes [NCEO], 1993; NCEO, 1994; National Goals Panel, 1993; O'Neil, 1993; Resnick, 1992; Tucker, 1992; U.S. Department of Education, 1994; Viadero and West, 1993; Wolk, 1992; Ysseldyke and Thurlow, 1992)

Concerns Expressed About Standards

Education Standards:

- Will become a national curriculum that erodes local control.
- Are being developed too quickly before costs and risks can be determined.

- Are being developed without sufficient attention to how they will impact on students with disabilities.
- Are being developed without sufficient attention to how they will impact on disadvantaged students.
- Are being developed by too many different groups working in isolation from one another and lack consistency across the various subject areas.
- Will lead to a "watered down" curriculum that will not challenge the most able students since they are being developed for *all* students.
- Will be too numerous, contain too much to teach, and will place too much of a burden on schools and teachers.
- Will be far too costly to implement.
- Will be impossible to implement by many states due to budget cuts that have left their education departments without adequate staffing to handle the new standards.
- Will require too much public and political support to implement successfully.
- Will require assessment systems and methods that are too costly and unreliable.

(National Center on Educational Outcomes, 1993; Shanker, 1992; Sizer, 1992; Viadero, 1993; Viadero and West, 1993; Wolk, 1992)

While support for education standards is extensive at national and state levels, implementing these standards will require significant changes in the way education is organized and delivered at the local district level. The benefits ascribed to standards are widely endorsed by education and business leaders, policy makers, and legislators. However, the concerns raised about their development and use reflect real issues that must be examined and addressed by leaders of reform efforts at all levels.

6. Will Standards Take Control of Education Away From Local Districts?

The purpose of education standards is to bring world-class standards to every school in the nation, not to take control of education away from local districts. The proposed national content standards are *voluntary* and are intended to serve as models and resources for state and local reform efforts, but not to be used as a national curriculum. The National Education Panel will not approve any

standards that are not both useful and adaptable at the local district level. The content standards must "allow local educators the flexibility to design their own curriculum plans within the broad outlines" and must be limited in number "so they are feasible for teachers, parents, and students to use" (National Education Goals Panel, 1993).

> ❖ *The purpose of education standards is to bring world-class standards to every school in the nation, not to take control of education away from local districts.*

States are using the national standards as benchmarks in developing state content standards which are often organized in curriculum frameworks. State curriculum frameworks act as blueprints for local districts and schools to modify and/or expand their existing curricula and develop classroom materials. Under the New Hampshire Education Improvement and Assessment Program, education standards, which draw from the work of national groups, have been developed and organized in curriculum frameworks for the subject areas of English/language arts, mathematics, science, and social studies. Schools and teachers have the flexibility to adapt the curriculum frameworks to their own needs.

7. Will Education Standards Lead to a "Watered Down" Curriculum For High Ability Students?

Education standards are intended to raise the quality of learning opportunities and expectations for all students, including those who are most able. Content standards represent the most important knowledge, skills, and understandings students are expected to learn. They are intended to serve as resources to help *all schools* make challenging and rigorous curricula available to students, and reduce disparities in the quality of education in different schools. At the national level, the National Education Panel will endorse only "world class" standards that are at least as challenging as academic expectations for students in other leading industrial countries, though not necessarily the same standards *per se*.

8. Will the National Standards Force Schools to Teach Certain Values and Attitudes?

The voluntary national content standards will address only core academic areas, such as those stated in the National Education Goals. The National Education Goals Panel has stated that "voluntary

national content standards should not address non-academic areas such as student values, beliefs, attitudes, and behaviors" (National Education Goals Panel, 1993).

9. How Will Education Standards Change Schools and Classrooms?

Education standards organize learning around what students need to know and be able to do, set high expectations for all students, and shift the reliance from norm-referenced standardized tests to the use of performance-based assessments. These reforms reflect a new and more ambitious mission for education than the one that was adequate for the industrial age. Standards-based reform presents significant challenges to educators. Never before have our schools been asked to ensure that *all* students achieve essential knowledge and competencies. Never before have teachers faced such diverse and challenging student populations. Never before have we asked schools to consider "higher-order" skills as *core* skills to be acquired by all students, not just the most gifted (Williams, 1994).

Changes in Instruction and Assessment

The emphasis on higher levels of learning requires that the learning process focus on how students think and what they understand (as opposed to getting the right answers) and build upon their previous experience. There is a shift away from a time-based approach to instruction towards more flexibility in allowing students to develop essential knowledge and skills over time. Grading is based on students' actual demonstration of proficiency.

> ◆ *Never before have we asked schools to consider "higher-order" skills as core skills to be acquired by all students, not just the most gifted.*

To develop higher order skills, new instructional methods engage students in "constructing" their own understanding from learning activities in which they play an active role. To develop reasoning, problem-solving, and decision-making skills, learning situations present students with real-world problems. They are encouraged to take increased responsibility for their learning, and have access to a wide range of resources including manipulatives and computer technology. They are given opportunities to explore issues and concepts in depth, and their understanding is developed and made more complete over time. Collaborative learning is emphasized and students are expected to learn from their interactions with both teachers and peers.

Instruction and assessment are integrated. Performance-based assessments are used that require students to demonstrate their understandings and skills through "authentic tasks" reflecting real-world situations. Performance-based assessments may involve an on-demand task, long-term projects, or portfolios containing a collection of student work produced over time. The contrast between current and emerging approaches is illustrated in Figure 2.

10. How Will Teachers Be Involved In Standards-Based Reform?

Achieving higher levels of learning for all students requires new roles and new skills for classroom teachers. It means that teachers will have to take risks and invest considerable professional time and energy into adapting and implementing new curriculum frameworks as well as trying new methods of instruction and assessment. Teachers are key to the successful use of education standards and professional development has been described as the linchpin of the reform movement.

Emerging classroom practices associated with higher standards of learning have teachers guiding student inquiry by posing problem situations related to real-life issues and providing a variety of opportunities for students to explore and confront concepts and situations over time. New approaches stress the need for teachers to organize learning around holistic concepts rather than fragmented units of information, use multiple sources of information rather than a single text, and work in interdisciplinary teams. Teachers also use multiple forms of assessment to gather concrete evidence of student proficiencies.

◆ *Teachers are key to the successful use of education standards and professional development has been described as the linchpin of the reform movement.*

Providing ongoing professional development opportunities for teachers to enhance and deepen their teaching skills is one of the two new National Education Goals. However, moving beyond the acceptance of in-service training as a once-a-year activity to the concept of professional development as a permanent and continuous part of the school culture will be a major challenge. Teachers will have to be confident that the standards are attainable and that the burden of change will not rest totally on their shoulders. At the pre-service level, standards-based reform complements a standards-setting process that has been occurring in the teaching profession over the past decade. Four organizations are leading the effort to professionalize teaching and have developed or are in the process of developing high standards of teacher preparation and performance.

These groups are the National Council for Accreditation of Teacher Education (NCATE), the Council of Chief State School Officers' Task Force on Licensing Standards, the National Board for Professional Teaching Standards, and the National Staff Development Council.

FIGURE 2

CURRENT AND NEW APPROACHES TO SCHOOLING

CURRENT APPROACHES	NEW APPROACHES
• The "inputs" and process of education are emphasized over results. Schooling is organized around time: curriculum is "covered"; instruction is paced by the schedule; and assessment occurs at "unit" intervals.	• The emphasis is on high levels of learning for **all** students. The pace of instruction is based on learning, not how much content has to be "covered." Diverse abilities, developmental levels, readiness, and learning styles are addressed so that all can succeed.
• Learning is organized around a standardized curriculum delivered in standardized time periods. Credentials are awarded based on "time served," issued in "Carnegie Units."	• Learning is organized around what students should know and be able to do. Credentialing is based on student **demonstration** of proficiency in knowledge and skill areas.
• The curriculum is derived from existing content, which is most often determined by textbooks. The curriculum is defined around a set of units, sequences, concepts, and facts.	• The curriculum is derived from standards that define what students should know and be able to do. Subject matter is "integrated" around "real-world" tasks that require reasoning, problem-solving, and communication.
• Assessment is done at the end of instructional units and often focuses on lower-level skills that can be assessed through paper-pencil responses. Grades are based on a cumulative averaging of performance over a fixed period of time. Norm-referenced standardized tests are used.	• Assessment is integrated with instruction and focuses on what students understand and can do. Performance-based assessments are used to assess student proficiencies. Grades are based on culminating knowledge and competencies rather than an averaging of test scores.
• School accountability is defined in terms of programs offered, attendance rates, and dropout rates; the number of students who are credentialed; and the results of standardized norm-referenced tests. There is minimal systematic monitoring of student progress on an ongoing basis.	• The school is accountable for ensuring and demonstrating that all students are developing proficiencies that represent high standards for what students should know and be able to do. There is an emphasis on frequent monitoring of student progress.
• School improvement focuses on improving the existing organization, by adding new programs, improving school climate, and increasing staff participation in decision making.	• School reform efforts focus on aligning curriculum, instruction, and assessment with standards, building school capacity, and teacher development.

(Lachat and Williams, 1994)

11. Will Parents Be Involved in Standards-Based Reform?

One of the new National Education Goals stresses the importance of schools' creating partnerships to increase parent involvement in promoting the social, emotional, and academic growth of children. Parent involvement is necessary to ensure that all children learn at high levels, and parent support for education standards and the school's efforts to improve the quality of learning is essential. It is hoped that schools will actively engage parents and families in a collaborative partnership that supports a child's education and well being.

Parents will need help in understanding how education standards will affect their children and the ways that schools organize and assess learning. They will also need opportunities to voice their concerns. Schools will need to provide accurate and ongoing information about the purposes of standards to overcome parent fears that children won't learn basic skills or that high-ability students will have fewer opportunities for advanced study. Parents can become closer partners with schools in many aspects of the learning process that support the development of higher order skills such as problem solving around "real world" tasks and communication. They can collaborate with teachers in examining assessment results and reinforcing their child's development in specific areas of proficiency.

> ◆ *Parent involvement is necessary to ensure that all children learn at high levels, and parent support for education standards and the school's efforts to improve the quality of learning is essential.*

12. What Is the Role of States in Standards-Based Reform?

More than 45 states are developing education standards that describe what children should know and be able to do and set high benchmarks for student learning (Ravitch, 1993; Viadero and West, 1993). The state initiatives are often linked to state assessment programs or curriculum frameworks and are intended to provide direction for reform at the local level. While various states differ philosophically about what is important to include in the school curriculum, the underlying purpose of most of the states' efforts is to align curriculum and instruction with clear definitions of student learning. The New Hampshire Education Improvement and Assessment Program is described in Chapter 2.

Goals 2000 provides grants to states that develop a "State Improvement Plan" which includes both content and performance standards as well as valid assessments aligned with these standards. Improvement Plans are to include reform strategies related to: (1) developing or adopting state content standards; (2) developing and implementing state assessments; (3) developing a process for aligning state or local curricula, instructional materials, and state assessments with state content and performance standards; (4) developing a process for familiarizing teachers with content and performance standards; and (5) opportunity-to-learn strategies. States will make subgrants to local districts to implement local plans.

13. What Do Community Members Need to Know About Standards-Based Reform?

The understanding and support of local communities is essential to the success of standards-based reform. This means that community members will need information on the purpose of educational standards and why they are needed; what will be required for schools to teach them; how their community can determine student success; and how they can support the school's efforts to meet the new demands of educating students in today's world. In New Hampshire, community members will need information on how the Curriculum Frameworks and the new statewide assessment program developed under the New Hampshire Education Improvement and Assessment Program will lead to higher levels of learning for children across the state.

There are some important messages that can help community members understand why education standards are needed. A sample of these messages follows:

- America has never had standards that represented consensus on what children should know and be able to do. Education standards will enable students, parents, teachers, and community members to share the same expectations about what students must be able to accomplish by certain points in their school career.

- Instead of comparing students to each other, we need to think in terms of the standards of learning that lead to success for each student.

- High standards are as important in education as they are in the medical profession, licensing pilots, and international sports competition such as the Olympics. They define what is essential for successful performance and encourage people to strive for the best.

(U.S. Department of Education, 1994)

Community support helps schools create the conditions that promote higher learning standards for all students. Everyone must play a role in creating better conditions for learning in schools.

> *It is essential that communities do more than lay out priorities. They must assist their schools with adequate resources, necessary support, and appropriate policies. Teachers cannot bear the burden alone. Determining both the standards and the means to reach them demands unprecedented action from alliances of students, parents, teachers, administrators, community members, and government officials.* (National Education Goals Panel, 1993)

Local communities differ in their needs and resources and each community must write its own road map for achieving education standards. Teachers, parents, and administrators will require broad community support to be successful, and success will require trust and action from new coalitions in every community.

14. What Do Education Standards Mean for Educational Equity?

The nation has made great progress in ensuring equal access to a free public education, and this success can be celebrated. However, this progress falls short of providing equity in the results achieved for all students whom schools are challenged to serve today. Many students experience serious difficulties in achieving learning success and do not have equal access to the quality of education necessary for success (Wang, 1991).

Supporters of education standards hope they will provide the leverage needed to address equity issues—the necessary leverage to overcome the low expectations set for many students, to ensure all schools and teachers are aiming at the same high goals, and to motivate communities to allocate the necessary level of resources. Beneath the surface of the current dialogue concerning standards for students with diverse needs is the question of whether the American dream truly belongs to all students and whether American society is morally committed to equal educational opportunity. Believing that high standards of learning are appropriate and even necessary for all students requires fundamental changes in our approach to schooling.

> *In the past how students were taught was mostly fixed, and the results varied—some students failed, most learned at least some of what they were taught. To enable all students to learn at high levels, varied instructional strategies are needed to challenge them. The standards are fixed but the means of reaching them are varied . . . . High standards for*

all is a way to say that we will refuse to settle for low levels of learning for any student. . . . All students will have opportunities to learn at higher levels when American society acts on its belief that this result is important now and in the future, it is fair, and it is possible. (National Education Goals Panel, 1993)

Properly developed, high national standards can do much to promote equity. Our education system is presently organized to deliver basic skills for all students with some skill enhancement for those who are college bound. "High national standards directly disclaim this two tier system of education," reflecting a basic belief "that all children can learn at high levels, given the time, tools, and motivation to do so. Standards emphasize our commitment to unlocking this potential in all children, not just those who are college bound" (Romer, 1992). For students with diverse and special needs, standards may help to clarify that the purpose of schooling is not to sort people into artificial and often limiting groups, but to make the knowledge and skills essential to success in today's society accessible to *all*. Given the increasingly diverse student population schools today are challenged to serve, the question can no longer be whether it is feasible to provide for diversity. "The question at hand is how we can best respond to student diversity so that standards are upheld for every student, including the most difficult to teach and most challenging to motivate" (Wang, 1994).

◆ *Given the increasingly diverse student population schools today are challenged to serve, the question can no longer be whether it is feasible to provide for diversity. "The question at hand is how we can best respond to student diversity so that standards are upheld for every student, including the most difficult to teach and most challenging to motivate." (Wang, 1994)*

15. Why Have Opportunity-To-Learn Standards Been Proposed for America's Schools?

Education standards are being developed to expand and diversify the student population that has access to "opportunities to learn" at high levels. However, there is wide recognition that conditions in many schools will not allow all children to have a fair opportunity to achieve the understandings and skills necessary to live and work productively in the 21st century. The opportunity-to-learn standards have been proposed to promote consensus on the school conditions that support high levels of learning for all. They address such areas as:

- The quality and availability of curricula, instructional materials, and technologies.
- Teacher capacity to provide high-quality instruction to meet diverse learning needs.

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- The extent to which curriculum, instruction, and assessment align with content standards.
- Teacher and administrator access to professional development and the best knowledge.
- A safe and secure learning environment.
- The availability of school libraries, laboratories, and other resources.
- Non-discriminatory school policies.

These standards underscore the quality of the learning environment, range of resources, and level of professional development necessary to support high student achievement for diverse learners. Primary issues are whether schools provide equivalent or comparable opportunities to learn for all children, and whether equity is reflected in the day-to-day-decisions and interactions that occur in schools. Opportunity to learn requires an equal chance to participate fully in the school program. It is defined by the quality of curricular offerings and instructional methods available to all students (Stevens, 1993; Wolf and Reardon, 1993). At the heart of "opportunity-to-learn" is equal access to powerful and sustained instruction—access to large ideas and worthwhile strategies as opposed to low-level comprehension lessons. This standard requires that school curricula concentrate on the capacities of reasoning, communication, problem solving, critical reading, writing, research skills, and the use of technology (Wolf and Reardon, 1993).

> *To meet the diverse needs of all students, we must apply the best of what is known about effective instruction and schools. We must also structure school resources in ways that allow flexibility—in teaming among regular and specialist staff, in scheduling and space arrangements, and in the use of curricular resources. And we must forge linkages among school staff, parents, and the community to enable educators to devote the needed resources and expertise to students who require extraordinary support in the regular curriculum while providing all students with the best possible opportunities to succeed in learning.* (Wang, 1994)

Teachers will need to draw upon a repertoire of instructional strategies and "best practices" for teaching all students at higher levels. For some students with special needs, a wider range of instructional accommodations may be necessary to allow them to engage in broader content areas and master higher order reasoning and problem-solving skills. Increased attention must be given to including diverse student populations in state and local assessments. The history of assessment is filled with the use of tests which have limited student access to opportunity. New forms of assessment are needed which increase access to testing and provide the conditions that allow success for diverse student populations.

Expanding and diversifying the student population which has access to opportunities that promote learning at high levels is a challenge for most schools, and the opportunity-to-learn standards will raise many complex issues about the inequities that exist between and among schools. In many schools, the boundaries of pluralism have been pushed beyond the school's capacity to respond, and the needs of diverse student populations exceed the resources currently available to meet them (Baker, 1992). The opportunity-to-learn standards thus have significant implications for school funding that will not be resolved easily, given the reality of economic constraints that exist at state and local levels.

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THE NEW HAMPSHIRE EDUCATION IMPROVEMENT AND ASSESSMENT PROGRAM

> *The major purpose of the program is improvement and accountability in education, not to establish a statewide curriculum. It establishes what New Hampshire students should know and be able to do so that local decisions about curriculum development and delivery can be made.*
> Legislation for the NH Education Improvement and Assessment Program

In 1989, the New Hampshire State Board of Education adopted the goal of developing an educational accountability system as one of its top priorities for educational reform in New Hampshire. This commitment led to the legislation for the Statewide Education Improvement and Assessment Program (RSA 193-C), which was established to improve student achievement and the quality of curriculum and instruction in New Hampshire schools. Several important principles were identified in the legislation to guide the direction of education reform at the state and local levels.

- *A statewide education improvement and assessment program built upon educational standards specifying what students should know and be able to do is an important element in educational improvement.* Such a program serves as an effective measure of accountability when the assessment tasks are valid and appropriate representations of the curriculum standards that students are expected to achieve.

- *Widespread participation in the establishment of a statewide education improvement and assessment program is essential.* Consultation with educators at all levels, business people, government officials, community members, and parents must occur in the development of educational standards. Widespread dissemination of those standards, once established, must occur.

- *Teachers, administrators, and school board members must be fully apprised of these state-developed standards.* They must, in turn, communicate these expectations to students and parents, as well as find and implement methods to enable students to acquire and apply the requisite knowledge and skills.

- *The assessment results must be reported to students, parents, teachers, administrators, school board members, and to all other citizens of New Hampshire so that informed decisions can be made* concerning curriculum, in-service education, instructional improvement, teacher training, resource allocation, and staffing.

- *A critical part of this program is the local education improvement and assessment plan.* In order for an assessment program to give an accurate picture of student performance, it must include more than a one-time measure. Local school districts should devise and implement measures which focus on the continuing growth of individual students, and report the results to parents along with those obtained from the state-developed tool.

The major components of the statewide program include *Curriculum Frameworks* that define educational standards for what students should know and be able to do, and the statewide *NH Educational Assessment Program* (NHEAP) based on the standards defined in the frameworks.

1. How Are the Curriculum Frameworks Organized?

As the foundation for the NH Education Improvement and Assessment Program (NHEIAP), the Curriculum Frameworks provide education standards that define what children should know and be able to do at the end of the third, sixth, and tenth grades in the subject areas of mathematics and English/language arts, and at the end of the sixth and tenth grades in science and social studies. The Curriculum Frameworks draw from the best work of the national standards projects as well as from other state efforts. They were developed through a collaborative effort involving staff members of the Department of Education; school district administrators and teachers; members of the State Board of Education; content specialists from higher education; legislators; and business representatives.

The standards in the Curriculum Frameworks are organized around strands which may be utilized in an interdisciplinary or thematic manner. Each of the four Curriculum Frameworks includes:

- **broad goals** that provide general expectations for what students should know and be able to do;
- **curriculum (content) standards** that provide definitions of what children should know and be able to do; and
- **proficiency standards** that identify the cumulative learnings to be measured in the state assessment program at the end of the third, sixth, and tenth grades.

Figure 3 depicts all of the broad goals defined in the *Mathematics Curriculum Framework*, followed by Figure 4 which shows how the broad goal for the problem-solving strand is translated into curriculum (content) standards and proficiency standards for various grade levels.

FIGURE 3

NEW HAMPSHIRE MATHEMATICS CURRICULUM FRAMEWORK:
BROAD GOALS

Students will:

- Use problem-solving strategies to investigate and understand increasingly complex mathematical content.
- Use mathematical reasoning.
- Communicate their understanding of mathematics.
- Recognize, develop, and explore mathematical connections.
- Develop number sense and an understanding of our numeration system.
- Understand the concepts of number operations.
- Compute.
- Use mental computation and estimation skills and strategies and know when it is appropriate to do so.
- Name, describe, model, classify, and compare geometric shapes and their properties with an emphasis on their wide applicability in human activity.
- Develop an understanding of measurement and systems of measurement through experiences which enable them to use a variety of techniques, tools, and units of measurement to describe and analyze quantifiable phenomena.
- Develop spatial sense.
- Know the basic concepts of trigonometry and apply these concepts to real-world problems.
- Use data analysis, statistics, and probability to analyze given situations and the outcomes of experiments.
- Recognize patterns and describe and represent relations and functions with tables, graphs, equations and rules, and analyze how a change in one element results in a change in another.
- Use algebraic concepts and processes to represent situations that involve variable quantities with expressions, equations, inequalities, matrices, and graphs.
- Be able to use concepts about mathematical change in analyzing patterns, graphs, and applied situations.
- Use a variety of tools from discrete mathematics to explore and model real-world situations.

(NH Department of Education, 1994)

FIGURE 4

MATHEMATICS CURRICULUM FRAMEWORK: PROBLEM SOLVING

Goal Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content.

Purpose Problem solving should serve as the organizing feature of the mathematics curriculum as well as other areas of study and be applied to everyday activities. Problem solving must not be seen as a separate topic, but rather the centerpiece of the mathematics curriculum. Students should have many experiences in posing and solving problems from their world, from data that is meaningful to them, and from mathematical investigations. Problem situations should give rise to mathematical concepts.

CURRICULUM STANDARDS:

Grade Levels K–3

- Make up problems based on relevant experiences.
- Solve problems using a variety of strategies.
- Formulate and solve real world problems.
- Verify and interpret results with respect to the original problem.
- Generalize solutions and strategies to new problem situations.
- Solve multi-step problems.
- Use problem solving approaches to investigate and understand new mathematical content, both independently and in groups.
- Demonstrate that a problem may be solved in more than one way.
- Exhibit confidence in their ability to solve problems independently and in groups.
- Display increasing perseverance, and persistence in problem solving.
- Write about problem solutions and solution processes.

Grade Levels 4–6

Building upon the K–3 experiences, in grades 4–6:

- Solve problems using a variety of strategies.
- Formulate and solve real world problems.
- Solve multi-step problems and problems with multiple solutions or no solution; and recognize problems where more information is needed.
- Use problem-solving approaches to investigate and understand mathematical content.
- Verify and interpret results with respect to the original problem.
- Demonstrate that a problem may be solved in more than one way.
- Develop confidence, perseverance, and persistence in problem solving both independently and in groups.
- Generalize solutions and strategies to new problem situations.

Grade Levels 7–12

Building upon the K–6 experiences, in grades 7–12:

- Determine, collect, and organize the relevant data needed to solve real world problems.
- Determine the reasonableness of solutions to real world problems.
- Use technology whenever appropriate to solve real world problems which require strategies previously learned.
- Use technology whenever appropriate to solve problems related to basic living skills including, but not limited to, personal finance, wages, banking and credit, home improvement problems, measurement, taxes, business situations, purchasing, and transportation.

PROFICIENCY STANDARDS

End of Grade 3

- Formulate problems from everyday and mathematical situations.
- Solve problems that require the use of strategies such as making a list, drawing a picture, looking for a pattern, etc.
- Use manipulatives and calculators to solve problems.
- Investigate new mathematical situations using previously-learned knowledge.

End of Grade 6

- Solve problems that require the use of strategies such as working backwards; looking for patterns and relationships; guess and check; making tables, charts and graphs; solving a simpler version of a problem; looking for similar problems; drawing a diagram; and creating a model.
- Formulate, solve, and verify problems from everyday and mathematical situations and interpret the results.
- Solve multi-step problems, solve problems with multiple solutions, recognize when a problem has no solution, and recognize problems where more information is needed.
- Investigate new mathematical situations using previously learned knowledge.
- Use manipulatives, graphs, charts, diagrams, and calculators in the solution of problems.
- Classify a given set of problems based upon the strategies needed for the solution.

End of Grade 10

- Determine, collect, and organize the relevant data needed to solve real world problems.
- Choose appropriate technology as a tool in solving real world problems.
- Translate results of a computation into solutions that fit the real world problem.
- Determine if the solution of a real world problem is reasonable.

(NH Department of Education, 1994)

2. How Do the Curriculum Frameworks Promote High Levels of Learning?

There are many ways that the Curriculum Frameworks can be used to help schools achieve higher levels of learning for all students. Research and practice in education has demonstrated repeatedly that holding high expectations for students is essential to their success in school. Without high standards, many students are assigned to unchallenging curricula focused on lower level skills. The Curriculum Frameworks *provide standards that are intended to raise expectations and the quality of learning opportunities for all students.*

The Curriculum Frameworks:

- Are based on widespread consensus and the best thinking in each subject field.
- Serve as *starting points* for curriculum improvement by describing what is recognized as important for *all* students to know and be able to do in today's society. They reflect the key concepts, principles, understandings, and skills that all children should have the opportunity to learn at the highest proficiency levels possible.
- Help schools ensure that all students are exposed to curricula based on high standards for student learning.
- Free schools from dependency on textbook publishers to define what is taught is schools, and help schools sort out the important ideas and skills from the trivial.
- Define standards of student proficiency, rather than "scopes and sequences" that are "covered," and identify the ways in which students can demonstrate what they know and can do.

◆ *Research and practice in education has demonstrated repeatedly that holding high expectations for students is essential to their success in school. The Curriculum Frameworks provide standards that are intended to raise expectations and the quality of learning opportunities for all students.*

- Encourage schools to integrate subject matter in solving problems that reflect real-world learning. Connections are thus created between how students learn in school and how they must apply knowledge and skills when they leave school.
- Promote the development of the information-gathering, problem-solving, and decision-making skills essential for all students to learn. Many of the proficiency standards require that students "construct" and demonstrate their understanding from learning activities in which they play an active role.

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- Encourage schools to use approaches that will reduce the extent to which many students leave school without employable skills.

It is recognized that all students may not achieve the same level of proficiency on standards at the same time. Implementing the frameworks will require varied instruction and assessment methods as well as accommodations for some students.

3. How Can School Districts Start to Implement the Curriculum Frameworks?

Five conditions are necessary for school districts to make a successful transition from a scope and sequence matrix to a standards-based curriculum framework.

1. Participants must **share a common vision** of the importance of standards-based curriculum frameworks and the purpose of the curriculum improvement process.

2. Participants must **become familiar with the curriculum frameworks**, and determine how they relate to the school's curriculum as it is currently practiced.

3. Participants must have **authorized time to construct, discuss, and review** their ideas and recommendations about the transition to standards-based curriculum frameworks.

4. Participants must **have sufficient support** to carry out the curriculum improvement process.

5. There must be a **plan for the sustained support** necessary to make the transition to a standards-based curriculum, including the staff development necessary for implementation at the classroom level. (Cray-Andrews, 1994)

Figure 5 on the next page identifies some key questions to guide local district transition to a standards-based curriculum framework.

FIGURE 5

KEY QUESTIONS TO GUIDE THE TRANSITION TO A STANDARDS-BASED CURRICULUM FRAMEWORK

1. To Analyze the Relationship of the Curriculum Framework to the Current Curriculum, and to Identify Areas for Development and/or Modification

What is the current curriculum structure?
What is the curriculum actually practiced in the school?
How do the intended and the practiced curricula relate to the Curriculum Framework?
What is the degree of overlap between current curriculum goals and objectives and the Framework goals and standards for students?
Based on the Curriculum Framework standards:

- what are the strengths of the practiced curriculum?
- what are the areas where the current curriculum needs to be strengthened?
- what areas need to be modified and/or expanded?
- what new areas should be added?
- what areas should be dropped from the curriculum?

2. To Define a Process for Curriculum Improvement

What are the specific objectives of the curriculum improvement process, what activities need to occur, and who needs to participate?
What is a reasonable timeline for completing the process, and what will the end product look like?
Which clusters of teachers make effective curriculum teams?
What are the specific tasks of the curriculum teams ?
Who are the content experts available to the teams?
Who will coordinate and manage the process across the teams?
How will the teams communicate to share progress and avoid duplication of effort?
How will broad staff input be obtained and incorporated into the process?
How will parent and community input be obtained and incorporated into the process?

3. To Define Curriculum Implementation and Staff Development Requirements

What is a reasonable timeline for completing the transition to the standards-based curriculum at the classroom level?
What are the priorities for staff development, and how can they be addressed within the specified timeline?
What resource and staff support are necessary for implementing the standards-based curriculum effectively over time?
How will change and improvement be monitored?

(Cray-Andrews, 1994)

4. How Is the NH Educational Assessment Program Different from Standardized Norm-Referenced Tests?

The NH Educational Assessment Program (NHEAP) includes test instruments that use the standards defined in the Curriculum Frameworks as performance criteria for assessing student proficiencies in mathematics and English/language arts at the end of the third, sixth, and tenth grades, as well as science and social studies at the end of the sixth and tenth grades. This program, therefore, differs from traditional standardized testing in that it measures what students know and are able to do against fixed standards of achievement rather than comparing student results to national norms.

> ◆ *This program differs from traditional standardized testing in that it measures what students know and are able to do against fixed standards of achievement rather than comparing student results to national norms.*

The assessment program, which includes the use of "performance-based testing," also represents a major shift away from reliance on multiple-choice testing. The NHEAP gives considerable attention to open-response questions requiring students to engage in a performance activity involving reasoning and problem-solving skills and having to construct their response rather than selecting a response from a list of options generated by the test developer. The assessment of students' writing through writing samples is another form of performance testing used.

The development of the NHEAP tests was a cooperative effort involving staff of the Department of Education; Advanced Systems in Measurement and Evaluation, Inc., of Dover, NH, the contractor for the assessment; and content committees composed of teachers, curriculum specialists, and other interested groups from across the state. The new assessment program has the following characteristics:

- It shifts from a predominant focus on the mastery of subskills to include broader content and higher order reasoning, problem-solving, and communication skills.
- Multiple-choice questions addressing only low-level skills comprise a smaller percentage of the test items than do most standardized tests. Other components include open-response questions, on-demand writing tasks, use of manipulatives, and questions for viewing and listening skills.

- A major portion of the test consists of common questions taken by all students which are used to produce individual student results. The remainder of the test items are divided among six different forms of the test, and each student completes one form. These items provide additional coverage of the Curriculum Framework standards.

(Advanced Systems in Measurement and Evaluation, Inc., 1994a)

5. Are All Students Expected to Participate in the NH Educational Assessment Program?

The new assessment program is intended for all New Hampshire students, and virtually all students are expected to participate. Districts are expected to administer the full battery of tests to all students, and the State Board of Education has established procedures for local schools to follow in assessing those students with disabilities and certain English-as-a-Second-Language students who may need some sort of test modifications. Decisions about test modifications or the exclusion of any student from the assessment must be the result of a group decision made at the local level.

◆ *The new assessment program is intended for all New Hampshire students, and virtually all students are expected to participate. . . . Exclusion from the assessment is viewed as a last resort after schools have fully explored the feasibility of using the various types of modifications available.*

Types of test modifications include: scheduling modifications; modifications in the setting where tests are administered; changes in format and/or the use of specific equipment; various options for recording student answers; the modality for giving the test and test instructions; and partial exclusions from sections of tests. Exclusion from the assessment is viewed as a last resort after schools have fully explored the feasibility of using the various types of modifications available. It is appropriate only if the assessment tool will not yield a valid indication of how a student functions in a given content area; exclusions are limited to those sections of the assessment that are inappropriate for the particular student.

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Students with Disabilities

- Students with disabilities shall have the opportunity to participate in the NHEAP.
- For every student with an identified disability, the Individualized Education Program (IEP) team will examine what modifications, if any, are necessary to meet the student's needs during the assessment process.
- Assessment modifications shall be consistent with those modifications already being employed in the student's program.
- Any modifications made for a student shall be stated in the minutes of the IEP team meeting and described in the student's IEP.

English-as-a-Second-Language Students

- Modifications and exclusions shall be made for ESL students based on their levels of English language proficiency.
- Transitional- and fluent-English-proficient students shall participate in the assessment with modifications as needed.
- Non-English-Proficient (NEP) and Limited-English-Proficient (LEP) shall be excluded from the assessment.
- An Assessment Modification Team shall meet to discuss and recommend modifications for students who do not have an identified educational disability. The team shall include one of the student's classroom teachers, the building principal, related services personnel, and whenever possible, the student's parents.
- Assessment modifications shall be consistent with those modifications already being employed in the student's program.

(Advanced Systems in Measurement and Evaluation, Inc., 1994b)

School districts are expected to identify the number and types of students who are excluded from the test and to list any modifications made for a student on the *NHEAP Roster of Modifications and Exclusions*.

6. What Information Does the NH Educational Assessment Program Provide?

The NH Educational Improvement and Assessment Program provides information to school districts, schools, and parents about what New Hampshire students know and are able to do in English/language arts, mathematics, science, and social studies. Four proficiency levels are used to describe what students at each level know and are able to do: Advanced, Proficient, Basic, and Novice.

School Districts Will Learn:

- The percent of students at each proficiency level in the district and in the state for the various subject areas.
- The percent of boys/girls, Chapter 1 students, and students with a disability scoring proficient or above within the district and within the state.
- The percent of students in the district and in the state who indicate they like mathematics.
- The district average scores for the following topics in the third grade tests for English/language arts and mathematics:

  language arts: reading, listening/viewing, writing
  mathematics: problem solving, reasoning, communication, connections, numbers, numeration, operations, geometry, measurement, data analysis

Schools Will Learn:

- Each student's overall performance level in mathematics and in language arts.
- The set of questions asked of all children.
- The percent of students answering the set of questions correctly in the school.
- The percent of students answering the set of questions correctly in the district and in the state.
- How each student answered the set of questions asked of all children.
- Each student's writing score and annotations based on the writing sample.
- Each student's scores for the open-ended questions.
- How the holistic and the analytic scoring guides were used for the writing sample.

Parents Will Learn:

- Definitions of each of the proficiency levels.
- Their child's level of proficiency in specific subject areas.
- The percent of students statewide who performed at each proficiency level.
- Strengths and areas for improvement suggested by the child's writing sample.

7. How Can Local Districts Use the Test Results?

The test results provide local districts with information that supports both *improvement and accountability*. Districts will be able to determine what their student populations actually know and can do when measured by educational standards representing essential learnings in today's society. Test results also will permit districts to compare their students to students statewide on subgroup and questionnaire characteristics. Subject area results, broken down into the specific strands defined in the Curriculum Frameworks, can be used as diagnostic information for examining district programs.

> ◆ ***Districts will be able to determine what their student populations actually know and can do when measured by educational standards representing essential learnings in today's society.***

Test result information can be used: (1) *at the district level* to measure school and district-wide progress toward meeting student achievement goals based on established education standards, to revise curriculum, and to design in-service education programs; (2) *at the school and classroom levels* to monitor student progress, enhance learning, and improve instruction; and (3) *at the student level*, by teachers, parents, and students to determine what the student knows and is able to do in relationship to established standards.

8. What Do Communities Need to Understand About the Test Results?

There are several key understandings that are essential for community stakeholders. Among these are:

- ***The assessment represents new and higher standards for student learning.*** Communities will need to recognize that the standards on which the test is based represent some areas of knowledge and skills that have not been taught directly in most New Hampshire schools.

- ***The first test scores are important baseline data for districts.*** *They are a beginning benchmark.* It is the first time student performance in New Hampshire is being measured against standards that represent essential learnings in today's world.

- ***Test results will not match the results of previous norm-referenced tests that included a higher proportion of lower-level skills than the new test.*** Districts that have historically prided themselves on having a large number of students scoring in the upper percentiles may find that many of their students score at the "Novice" or "Basic" levels of proficiency.

- ***Because the test assesses a broad range of content and skill areas, the test instruments may seem considerably more difficult to students than tests to which they are accustomed.*** This factor may have an impact on the baseline test scores.

> ❖ *It is the first time student performance in New Hampshire is being measured against standards that represent essential learnings in today's world.*

School district staff will need to give considerable attention to analyzing the test results and communicating with all stakeholders what the results mean. The baseline results should be used as a foundation to identify areas where current curriculum and practice promote high standards of student learning as well as areas for curriculum improvement and staff development.

9. What Are the Connections Between the NH Education Improvement and Assessment Program and Standards-Based Reform at the National and Local Levels?

For the first time in the nation's history, there is remarkable coherence among reform efforts at the national, state, and local levels. At the national level, the *Goals 2000: Educate America Act* has set a common agenda to guide nationwide systemic reform based on achieving high standards of learning for all students; it has also defined coherent federal, state, and local roles and responsibilities for education reform and lifelong learning. Through a broad consensus process, the national standards projects are defining content standards for what children should be able to do in the major subject areas. These projects provide important benchmarks and guidelines for state-level efforts, such as the NH Education Improvement and Assessment Program, that are focusing on the development of curriculum frameworks and new assessment systems based on high standards of learning.

At the local level, districts can use the curriculum frameworks to improve their curricula based on clear standards for what students should know and be able to do. Statewide assessment results can be used to focus school improvement efforts and to demonstrate student progress to stakeholders on the higher order proficiencies necessary to live and work in the 21st century. Ultimately, these reform efforts will have a significant impact on how learning is organized at the classroom level. Figure 6 illustrates these linkages from the national to the classroom level.

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◆ *Statewide assessment results can be used to focus school improvement efforts and to demonstrate student progress to stakeholders on the higher order proficiencies necessary to live and work in the 21st century.*

All of the initiatives are aimed at the same result: ensuring that *all* students develop the knowledge and skills they need to succeed as workers and citizens. "Such significant convergence is rare in public policy, particularly in education. This common mission, and the complementary initiatives that it is driving, represents both challenges and opportunities for educators and stakeholders" (Williams, 1994).

FIGURE 6

STANDARDS-BASED REFORM FROM THE NATIONAL TO THE CLASSROOM LEVEL

NATIONAL	STATE	DISTRICT AND SCHOOL	CLASSROOM
Goals 2000: Educate America Act • National Education Goals • Coherent, systemic nationwide reform • Emphasis on high standards of learning for *all* students • Focus on improving quality of learning and teaching • Appropriate federal, state, and local roles/ responsibilities for education reform defined **National Standards Projects** • Developing of content standards that define what children need to know and be able to do to live and work in the 21st century • Standards for the arts, civics, English/languages arts, foreign languages, geography, history, and science, developed via a process modeled by *Curriculum and Evaluation Standards for Mathematics* (1989)	**The NH Education Improvement and Assessment Program** • The NH Curriculum Frameworks – Promote improvement and accountability in education – Draw from national standards projects – Define what children should know and be able to do in mathematics, English/language arts, science, and social studies – Include broad goals, curriculum standards, and proficiency standards • The NH Education Assessment Program – Measures what students know and are able to do based on standards for learning defined in the Curriculum Frameworks – Shifts from a predominant focus on low-level skills to broader content, and higher-order reasoning, communication, and problem-solving skills – Includes performance-based testing – Provides reports for districts, schools, and stakeholders on student proficiency levels	**Local Education and Improvement Plans** • Use NH Curriculum Frameworks to improve local curricula based on clear standards for what students should know and be able to do • Develop local assessments based on standards for learning • Use statewide assessment results to improve programs and demonstrate accountability • Monitor student progress over time based on standards for student learning • Promote staff development to improve quality of instruction	**Learning Organized Around Standards for What Students Should Know and Be Able to Do** • Emphasis on high levels of learning for all students • Varied instruction and assessment methods used to address diverse needs and abilities • Students are active learners engaged in real-world tasks • Assessment integrated with instruction and focused on student demonstration of proficiencies • Pace of instruction based on learning rather than "coverage" of content • IEPs for students with disabilities based on standards for what students should know and be able to do

(Lachat, 1994)

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EDUCATION STANDARDS AND STUDENTS WITH SPECIAL NEEDS

Education standards emphasize better results for all students, shifting the emphasis from access for all to high-quality learning for all.

High standards for *all* students is the most important premise and the greatest challenge of the standards movement. This principle has important implications for the education of students with special needs. It stresses that all children must have opportunities to learn at high levels. Education standards emphasize better results for all students, shifting the emphasis from *access for all* to *high-quality learning for all*. "We can no longer simply assert that if students are limited in their English proficiency or have a mental disability, for example, they need not meet national educational goals, or that we do not need to measure their success toward those goals" (Ysseldyke and Thurlow, 1992).

Special education was built upon a concern for access and process. After the enactment of P.L. 94-142 in 1975, priorities were driven by an emphasis on compliance with the procedural provisions of the Act that were designed to ensure access and equity for students with disabilities. This resulted in a focus on the input and process elements of programs and services. Top priorities focused on: (1) getting children and youth with disabilities who were out of school into school; (2) ensuring that children who were in school were receiving appropriate services; and (3) guaranteeing a fair process in designing programs for individual children (Roach, 1991). Traditionally, outcomes for students with disabilities were defined as long-term process goals and short-term objectives on a student's Individualized Education Plan (IEP); these outcomes did not reflect standards of student performance or educational results. *"Disappointment with educational results, however, has led many special educators, policymakers, and advocates to conclude that focussing exclusively on the processes of schooling is misguided"* (Brauen, O'Reilly, and Moore, 1994).

The nationwide focus on education standards has caused educators and advocates who work with the nation's 5.2 million students with disabilities to focus on academic expectations for these students and to question whether the education system is working for them. The concerns are well founded. The National Longitudinal Transition Study determined that about a third of 8,000 students enrolled in special education programs in the 1985–86 school year dropped out of school. In its Thirteenth Annual Report to Congress on the Implementation of the Individuals with

Disabilities Education Act, the U.S. Department of Education reported that in 1988–89, only slightly more than one-half of students with disabilities left their school systems with a diploma or certificate.

Considering the needs of students with disabilities in a process that seeks consensus on the academic standards desirable for all students is a major shift in emphasis for this population. The process raises many questions that must be examined and resolved to ensure that these students benefit from current efforts to improve the quality of student learning in schools.

1. What Do National Goals and Education Standards Mean for Students with Special Needs?

The National Governors' Association proposed the national goals as a vision of change for *all* children. The goals were designed from a belief that "efforts to restructure education must work toward guaranteeing that all students are engaged in rigorous programs of instruction designed to ensure that every child, regardless of background or disability, acquires the knowledge and skills necessary to succeed in a changing economy" (National Governors' Association, 1990). The report, *Promises To Keep: Creating High Standards for American Students* (National Education Goals Panel, 1993a), emphasized that "all students should be held to high and appropriate standards, and should be included in efforts to characterize the nation's level of education achievement." Specific reference was made to the importance of high standards for students with disabilities as follows:

◆ *"Efforts to restructure education must work toward guaranteeing that all students are engaged in rigorous programs of instruction designed to ensure that every child, regardless of background or disability, acquires the knowledge and skills necessary to succeed in a changing economy." (National Governors' Association, 1990)*

> *The purpose of standards-based reform is to include everyone in deeper understanding of the most important and enduring knowledge and skills. To succeed, the nation must raise achievement at all levels—among the most able as well as the average and the disabled.* (National Education Goals Panel, 1993a)

The report indicated that the standards set by the national professional organizations will be appropriate for many students now served in special education, recognizing that "for students with some disabilities, it might be appropriate to modify the conditions of instruction and methods of assessing attainment of those standards."

> *The standards discussed in this report would apply directly to all students except those, like the severely mentally retarded, whose individual diagnosis implies a judgement that the student cannot meet them. . . . We defer to health and special education professionals to identify on a case-by-case basis the standards, both the content and level of performance, appropriate for these students.* (National Education Goals Panel, 1993a)

The Goals Panel also emphasized that subject area content standards must be developmentally appropriate:

> *The standards proposed should support and challenge students achieving at all performance levels. While they should not represent minimum expectations, the standards should be suitable to and within the capabilities of students to learn. Regardless of students' perceived ability, the standards should be achievable with proper supports and sustained effort. They should build appropriately on students' developed capabilities at the elementary, middle, and high school levels of schooling.* (National Education Goals Panel, 1993a)

All of the national standards projects in the various subject areas affirm that the *content standards* which define what American students should know and be able to do are meant for *all* students—all of America's students are to have the opportunity to learn academic content that reflects high standards for learning. This basic premise was endorsed by the National Center on Education Outcomes (NCEO)[1] which recommended that one set of content standards be identified for all students, stating that there is no need to identify separate special education standards. "What is important for some students to know is important for all students to know. The content standards of the skills and knowledge required for a trained and informed work force are useful for students at all ability levels" (National Center on Educational Outcomes, 1994). All of the national groups recognize, however, that *performance standards,* which represent levels of student proficiency on the content standards, will vary depending upon student abilities and interests.

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[1] *The National Center on Educational Outcomes (NCEO) is funded by the U.S. Department of Education to work with national policy-making groups and state departments of education to facilitate and enrich the development and use of education outcomes for students with disabilities.*

2. Will Students with Special Needs Experience More Failure If They Are Held to Higher Standards?

Numerous studies stress that holding higher expectations for students with disabilities and disadvantaged students is essential to *increasing* their rates of success in school. Current failure rates are partially tied to the low expectations held for these students and the fact that many of them are never exposed to challenging or motivating curricula. Schools cannot be held accountable for successful student performance unless students are exposed to a curriculum derived from clear standards regarding what students should know and be able to do. Without clear standards in focus, these students may continue to be consigned to curricula that do not include challenges they can meet (Brauen, O'Reilly, and Moore, 1994). Students will vary in their performance on standards and will require different time frames to develop various levels of proficiency—*not all students will achieve the same level of proficiency on standards at the same time.* Varied instruction and assessment methods will be necessary, as will accommodations for some students.

◆ *Numerous studies stress that holding higher expectations for students with disabilities and disadvantaged students is essential to increasing their rates of success in school.*

3. What Issues Have Been Raised About Education Standards for Students with Special Needs?

The primary issue is *how to include students with widely varying needs and abilities in a system that emphasizes high academic standards for all.* Many teachers and advocates for students with disabilities and students with limited-English proficiency are stressing that the standards-setting process has given too little attention to *how* diverse student populations will meet the standards. More attention must be given to the "nuts and bolts" of implementing standards and the accommodations that will be necessary for some children (Viadero and West, 1993). Concerns focus on how schools can ensure high levels of learning for all students, given the diversity in needs, abilities, and talents in student populations and how differences can be accommodated without sacrificing academic rigor or dooming certain students to failure (Institute On Disability, 1993).

One issue relates to the use of instructional strategies embedded in the emerging education standards for some students. Because of the emphasis on reasoning and problem-solving skills, many of the

content standards have a constructivist, discovery-learning orientation. New instructional methods require students to "construct" and demonstrate their own understanding through real-life learning situations in which they play an active role. These new methods are an alternative to traditional methods where teachers "delivered" the curriculum and students "learned" it without necessarily understanding what they learned, or without being able to apply learnings to real-world situations. The appropriateness of new instructional methods is being questioned for some students who are claimed to need a more teacher-directed approach to learning basic skills before they can participate in more open-ended inquiry. However, proponents stress that *varied methods are essential for students with wide ranging abilities and interests*, and that more active learning approaches requiring students to demonstrate what they understand may reduce the extent to which so many students "fall through the cracks" and leave school without employable skills.

> ◆ ***The failure to hold schools accountable for the outcomes of students with disabilities is ill advised when evidence exists that students with disabilities are not reaching satisfactory levels on such outcomes as understanding basic math and science concepts, school completion, and employment. (Brauen, O'Reilly, and Moore, 1994)***

Another key concern relates to *the participation of students with special needs in assessments of academic achievement*. Each year the National Education Goals Panel produces a report on the nation's progress toward the national goals, but most of the sources of information for the report do not include students with disabilities because these students are excluded from data collection systems. A report issued by the National Center on Education Outcomes concluded that the "ability to extract useful national and state policy-relevant information on the outcomes of students with disabilities from national and state data collection systems is seriously hampered by the extensive exclusion of portions of this population." The report highlighted the following information:

- At the national level, it is estimated that approximately 40% to 50% of school-age students with disabilities are excluded from prominent national data collection programs.
- State-level data documenting the extent of exclusion of students with disabilities and reasons for exclusion are, with a few exceptions, largely unavailable at this time.
- A sizable portion of excluded students should not have been excluded from data collection programs and could readily participate (some with testing accommodations, others without) in such data collection programs (McGrew et al., 1992).

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Educators and policy makers are emphasizing the need to include students with disabilities in national, state, and local assessments.

> *The failure to hold schools accountable for the outcomes of students with disabilities is ill advised when evidence exists that students with disabilities are not reaching satisfactory levels on such outcomes as understanding basic math and science concepts, school completion, and employment.*
>
> *Moreover, since most students receiving special education services spend more than half their school day with their nondisabled peers, the successes or failures of students with disabilities must be considered when outcomes are assessed and reported.* (Brauen, O'Reilly, and Moore, 1994)

In some states, the extent to which the consequences of "high stakes testing" for school districts will lead to the exclusion of certain students in statewide assessments is a concern. Research has shown that the criteria used to exclude students with disabilities from testing programs are typically set by local school personnel, and many schools leave these students out of testing programs to boost overall district scores (Destefano and Metzer, 1991). It is feared that the pressures of public backlash to the initial results of new statewide assessment programs may prompt some school administrators to look for ways to prevent students who might not perform well on the tests from taking them. This would result in further isolation of these students from the school program. (Viadero and West, 1993; National Center on Educational Outcomes, 1994).

◆ *"Schools should not be penalized for having a diverse population of learners. Nor should they be rewarded for meeting the needs of only some of their students"*
(Center for Policy Options in Special Education, 1994)

Various states are grappling with issues surrounding the participation of students with disabilities in new standards-based assessment programs. Incentives are needed to encourage school administrators to include all students in performance assessments. "Schools should not be penalized for having a diverse population of learners. Nor should they be rewarded for meeting the needs of only some of their students" (Center for Policy Options in Special Education, 1994).

The NH Education Improvement and Assessment Program (NHEIAP) has been designed to include all students, and virtually all students are expected to participate in the program, including students with disabilities. Districts are expected to administer the full battery of tests to all students, and the

State Board of Education has established procedures for local schools to follow in assessing those students with disabilities who may need some sort of test modifications. Exclusion from the assessment is viewed as a last resort to be considered only after schools have fully explored the feasibility of using the various types of modifications available. Policies and procedures for districts include the following:

- For every student with an identified disability, the Program Evaluation Team (P.E.T.) will determine what modifications, if any, are necessary to meet the student's needs during the assessment process.
- Assessment modifications shall be consistent with those modifications already being employed in the student's program.
- Any modifications made for a student shall be stated in the minutes of the P.E.T. meeting, described in the student's Individualized Education Plan (IEP), and listed in the *NHEAP Roster of Modifications and Exclusions*.

NHEAP offers an important opportunity to include students with disabilities in a performance-based assessment of student progress. Test results are disaggregated to allow districts to determine the percent of students with disabilities and students eligible for Chapter 1 services scoring "Proficient" or above in the subject areas assessed. It will be important to give positive recognition to districts demonstrating a commitment to including students with disabilities in the assessment program and to improving the performance of these students over time.

Supporters of standards recognize that including all students in curriculum frameworks based on high learning expectations presents significant challenges. In New Hampshire, educators at all levels will need to form new partnerships and define more collaborative ways of working together so that all students benefit from the use of the NH Curriculum Frameworks. For special educators, the first challenge will be to achieve broader agreement that the concept of "high expectations for all students" is as important for students with disabilities as it is for their nondisabled peers.

4. What Are the Implications of Having a Unified Framework of Curriculum Standards for All Students?

◆ *Organizing student learning around standards that have been defined for all students will increase the access of students with disabilities to the core set of knowledge and skills necessary for success in today's society.*

Having the same curriculum standards for all students means that there is a core curriculum framework based on consensus about what all students should know and be able to do at some level. A single set of standards assumes that there is a core curriculum for all. All students are exposed to and have access to the core content standards and the types of instructional practices that promote high levels of learning. In New Hampshire, curriculum (content) standards have been defined for each of the subject areas of English/language arts, mathematics, science, and social studies in the Curriculum Frameworks developed under the New Hampshire Education Improvement and Assessment Program.

When one set of curriculum standards is used for all students, the question must be asked: "Will all students be expected to achieve the same level of performance?" Many supporters of a single set of standards stress that the education needs of diverse student populations can be met through the use of varied instructional approaches as well as performance standards that accommodate varying levels of proficiency and achievement.

> *Within a unified curricular framework, students with disabilities receive instruction in the broad curricular domains but at levels commensurate with their current functioning and with instructional modifications as needed. The primary need is for breadth and balance—meaning that the curriculum should be defined not in terms of narrow subject matter but broader areas of knowledge and skill.* (McLaughlin and Warren, 1992)

◆ *Varied instructional strategies are essential for enabling students with diverse needs and abilities to learn at high levels—the standards are fixed, but the means of reaching them are varied.*

Varied instructional strategies are essential for enabling students with diverse needs and abilities to learn at high levels—*the standards are fixed, but the means of reaching them are varied.* For students with some disabilities, it may be appropriate to modify the conditions of instruction and the methods for assessing the

attainment of standards. The use of a unified set of curriculum standards has several implications for students with disabilities that include:

- Organizing student learning around standards that have been defined for all students will increase the access of students with disabilities to the core set of knowledge and skills necessary for success in today's society.
- The use of curriculum standards may increase sensitivity to the need for instructional diversity and promote more rich and rigorous instructional programs for students with varying needs and abilities.
- Students' diverse needs must be accommodated in the proficiency levels (performance standards) defined for meeting the curriculum standards.
- Individualized Education Plan (IEP) goals and objectives should reflect the standards for learning and achievement.
- Diverse approaches must be considered when selecting appropriate assessments. Alternative approaches, such as performance-based assessments and the use of portfolios, need to be explored. The use of these approaches for students with significant disabilities needs to be evaluated.

A unified curriculum framework that defines appropriate learning expectations for all students will increase opportunities for collaboration among special and regular educators. A unified framework of education standards for all students will also allow schools to monitor the success of students receiving special education services more effectively (Brauen, O'Reilly, and Moore, 1994; McLaughlin and Warren, 1992).

5. How Can Schools Include Students with Varying Functional Needs in a Standards-Based Framework?

> ◆ *By individualizing content standards to meet the specific needs of students with severe disabilities, special educators can include this population in school improvement efforts based on curriculum frameworks that provide a unified approach to learning for all students.*

While the large majority of students with disabilities will have the same content standards as their nondisabled peers, content standards may need to be modified or tailored for some students with disabilities to reflect their diverse functional and educational needs. Some students with disabilities have self-care needs,

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and content standards may have to be expanded to include the necessary independent living and social skills needed by these students.

A modified set of content standards requires curricula with distinct alternatives designed to meet the unique educational needs of certain students with disabilities. Special education and other school staff will need to take the following steps:

- Identify students who will require some modified content standards.
- Identify the core content standards which are appropriate for these students without modification.
- Identify the areas for which content standards must be modified.
- Discuss with parents the need for and implications of using modified standards and assure them that their children are not being denied equal access to the benefits of the standards established for all children.
- With parents as partners, develop modified content standards appropriate to the child's educational needs and goals (Brauen, O'Reilly, and Moore, 1994; McLaughlin and Warren, 1994).

> ◆ *Some may argue that high standards of learning are appropriate for certain students but not for others. "Some draw the line at students who have severe disabilities; others, at students who have learning disabilities. . . . too often people draw these lines in ways that focus on labels and prejudice about capabilities, rather than on individual student abilities and creative possibilities." (Takemoto, 1993)*

By individualizing content standards to meet the specific needs of students with severe disabilities, special educators can include this population in school improvement efforts based on curriculum frameworks that provide a unified approach to learning for all students. An approach that includes the option to modify content standards for some students will ensure that the needs of students with diverse functional abilities are met, allow these students to be included in a standards system, and still ensure that the majority of students with disabilities are not excluded from the core set of content standards.

6. What Instructional Methods are Necessary for Including Students with Diverse Needs in a Standards-Based Curriculum Framework?

Including students with diverse needs in a standards-based curriculum framework requires approaches that are student-centered, flexible, and creative. Educators can meet students' individual needs by creating learning environments that value and support all students, matching teaching strategies to learning styles, and furnishing necessary accommodations and supports.

> *Teachers should begin differentiating instruction by identifying the key concepts and understandings in the lesson or unit. All learners should focus on those elements because they carry with them the structure of the information, and power for future learning. All learners should also have experiences that cause them to comprehend—as well as to work—at higher levels of thought.*
>
> *Using key concepts and generalizations as a basis for planning, teachers can modify content, sense-making activities, and products by adjusting many factors—their complexity, abstractness, pacing, independence level, open-endedness, and mode of expression—to accommodate student readiness, interests, and learning styles. Instructional strategies such as compacting, tiered activities, learning contracts, interest centers, negotiated product criteria, independent study, and portfolios are helpful in managing a differentiated classroom.* (Tomlinson, 1994)

Including students with diverse needs in a standards-based curriculum framework requires educators to move beyond the limitations of labeling. Some may argue that high standards of learning are appropriate for certain students but not for others. "Some draw the line at students who have severe disabilities; others, at students who have learning disabilities. Unfortunately, all too often people draw these lines in ways that focus on labels and prejudice about capabilities, rather than on individual student abilities and creative possibilities" (Takemoto, 1993). The National Center on Education Outcomes has made several recommendations for implementing a unified framework of content standards for students with disabilities, also emphasizing that when standards are translated into curricular and instructional programs for students, individualized approaches must be used to meet diverse needs. Some students will need different learning experiences, levels of service, and instructional accommodations. Curricular choices thus align with the content standards while the mode, depth, and breadth of instruction may vary (National Center on Educational Outcomes, 1994).

7. How Can Individualized Education Plans (IEPs) Be Used to Support the Use of Education Standards for Students with Disabilities?

> ◆ *IEPs can be effective tools for supporting higher levels of achievement for students with disabilities, and for determining the levels of learning attained by these students. The process will require a commitment to setting high expectations for each student.*

As they are currently designed, IEPs are ineffective in assessing the results achieved by students with disabilities; they are not results-oriented. Traditionally, IEPs have focused on long-term process goals and short-term objectives that did not reflect standards of student performance or educational results. Several studies have pointed to the limitations of the IEP as a tool for supporting academic success, indicating that when knowledge or skill areas are addressed, they tend to reflect lower-level reading and computational skills.

> *Special education teachers must also recognize that their students do need instruction in critical thinking and problem solving. It is a disservice to assume that computational fluency will prepare them to be responsible citizens. . . . Teachers of students with disabilities must address a broader array of topics and skills than they appear to be covering. To this end, IEPs should be developed with an eye on both remediation of basic skills and development of new skills that meet the standards of his or her district, state, and nation.* (Shriner et al., 1993)

The use of the IEP to support the use of education standards for students with disabilities would include the following:

- IEP goals and objectives would reflect clear standards for student learning and achievement, including targets for improving student achievement based on statewide assessment results.

> ◆ *Special education teachers must also recognize that their students do need instruction in critical thinking and problem solving. It is a disservice to assume that computational fluency will prepare them to be responsible citizens.*

- The appropriate depth and breadth of instruction needed for particular content standards would be specified, and necessary accommodations and adaptations in instruction and assessment would be identified in the IEP.
- The IEP team would identify the levels of proficiency that will move students to the highest level possible and define baseline criteria and benchmarks for determining progress and achievement.

- When content standards need to be modified or tailored to meet the functional and educational needs of a given student, the IEP process can be used: (1) to discuss with parents the need for and implications of using modified standards; and (2) to involve parents and other members of the team in developing modified standards appropriate to that particular child's needs and goals.

IEPs can be effective tools for supporting higher levels of achievement for students with disabilities, and for determining the levels of learning attained by these students. The process will require a commitment to setting high expectations for each student. It will demand a clear focus on developing each student's abilities and creative possibilities as well as careful consideration of the range of instructional options and accommodations that best support student success.

8. What Needs To be Considered In the Use of Performance Standards for Students With Disabilities?

Performance standards set specific expectations for student performance and various levels of mastery on the content standards. Proficiency levels must be defined so student progress toward the content standards can be assessed. Setting high performance standards for students with disabilities means they will be challenged to meet high expectations and will have opportunities to demonstrate they can meet high levels of performance. At the same time, it is essential that performance standards do not program some students for failure.

> ◆ *Students can be challenged to strive for excellence when they are guided by levels of performance standards that provide high expectations but do not sentence them to failure.*

Setting various levels of proficiency for a core set of content standards is one of the most complex aspects of establishing education standards in American schools. For students with disabilities, the process has to take students' unique education needs into account, such as functional ability, type of disability, or language proficiency. Students can be challenged to strive for excellence when they are guided by levels of performance standards that provide high expectations but do not sentence them to failure; however, "policies will need to be established to protect against the over-identification of students who will work toward different performance standards," and to ensure that lower expectations are not perpetuated for students with disabilities (Brauen, O'Reilly, and Moore, 1994). Once performance standards are established, the IEP team will have to decide the level of proficiency that is feasible for a student. *The goal is to move all students to the highest level possible.*

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9. What Are Some Guidelines for Using Accommodations and Adaptations During Assessment?

The Goals 2000 legislation's emphasis on high levels of learning for all students has intensified the attention given to ensuring the participation of students with disabilities in national and state assessment programs. For some students with disabilities, accommodations and adaptations are an integral part of instruction and assessment. The National Center on Education Outcomes and a Task Force on Assessment convened by the Center for Policy Options in Special Education at the University of Maryland have identified the following guidelines for the use of accommodations and adaptations in the assessment process:

- When needed, accommodations and adaptations should facilitate an accurate demonstration of what a student knows or can do. They should be necessary for enabling the student to demonstrate knowledge, ability, skill, or mastery.
- They should be the same, or similar to, the accommodation or adaptation the student uses when performing classroom tasks with the same or similar demands.
- They should not provide the student with an unfair advantage or interfere with the validity of the test.
- An assessment should allow for a variety of adaptations and accommodations, such as different presentation formats, response formats, timing and scheduling options, and options in the setting used to administer the test.
- When a variety of acceptable accommodations and adaptations is available, the options selected should be those deemed most effective and least intrusive.

(Center for Policy Options in Special Education, 1994)

Recommended guidelines emphasize that decisions about the use of accommodations and adaptations in assessment situations *should be made on an individual basis* and based on the "functional" rather than the "categorical" characteristics of the student. Decisions should always be based on a systematic approach by a designated team which includes parents.

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DEVELOPING NATIONAL STANDARDS FOR *ALL* STUDENTS

> *If the United States is to maintain leadership and prosper in the 21st century, standards for learning in the nation's schools must reflect the realities of an emerging world society that will offer few decent jobs to the poorly educated.*

Two of the National Education Goals focus on improving the knowledge and skills of the nation's students and set the stage for developing national standards that are intended to: (1) identify what students need to know and be able to do to live and work in the 21st century; (2) raise the achievement of all students; (3) ensure that all students have equal educational opportunity; and (4) create a coherent and consistent approach to education in the nation's educational system. Currently, several national professional groups are spearheading efforts to set academic standards for their own disciplines, and the U.S. Department of Education has funded national standards projects in the arts, civics, geography, English, foreign languages, geography, history, and science. Specialists in various disciplines are moving beyond their parochial interests to agree on a core set of knowledge and skills that all students, not just high achievers, should be taught. Figure 7 shows the groups that are leading the national standards-setting process.

1. What Are the Similarities in the National Standards Projects?

> ◆ *The well-being of the nation in a highly competitive world rests on its ability to compete, not just economically but intellectually . . . education standards address this need directly.*

All of the national standards projects are developing content standards that define what American students should know and be able to do at different grade levels within specific disciplines. Underlying their efforts is the belief that the well-being of the nation in a highly competitive world rests on its ability to compete, not just economically but intellectually, and that education standards address this need directly. If the United States is to maintain leadership and prosper in the 21st century, standards for learning in the nation's schools must reflect the realities of an emerging world society that will offer few decent jobs to the poorly educated (De Souza, 1994). The purpose of the national standards projects is to bring all students up to levels that meet the demands of this society.

FIGURE 7

NATIONAL STANDARDS PROJECTS

MATHEMATICS

The National Council of Teachers of Mathematics is widely credited with developing the first national content standards through a broad-based consensus process involving mathematicians, business leaders, parents, and thousands of teachers. *Curriculum and Evaluation Standards for Mathematics* was completed in 1989, and is considered a model for other national standards projects to follow. Assessment standards were released in 1993.

ARTS

The standards were developed by the Consortium of National Arts Education Associations, under the guidance of the National Committee for Standards in the Arts. The Consortium includes the National Arts Education Association, the American Alliance for Theatre and Education, the Music Educators National Conference, and the National Dance Association. The standards resulted from an extended process of consensus-building involving the membership of the four groups and was overseen by a 35-member board of artists and educators. The standards were completed in 1994.

CIVICS

The standards were developed by the Center for Civic Education, which has assembled several national panels and focus groups to guide its work. Work was monitored by a 25-member steering committee with representatives of national education and political science groups, curriculum specialists, teachers, scholars, and congressional staff members. The standards were completed in 1994.

ECONOMICS

The National Council on Economic Education began the process of developing standards in 1994. The effort involves a national task force of economists, teachers, employers, representatives of national groups such as the National Council for Social Studies, textbook publishers, and representatives from organized labor. The standards are scheduled to be completed in 1995.

ENGLISH & LANGUAGE ARTS

The U.S. Department of Education discontinued funding to the Center for the Study of Reading, which was working to develop standards in collaboration with the National Council of Teachers of English (NCTE) and the International Reading Association (IRA), citing lack of progress. NCTE and IRA are collaborating to continue the development effort.

SCIENCE

The National Committee on Science Education Standards and Assessment, operating under the aegis of the National Research Council, is leading the effort to develop science standards for science content, teaching, and assessment. Three groups with a majority of teachers working with scientists, educational psychologists, and other professionals are developing the standards. A review process will involve hundreds of educators and scientists. Draft standards were released in 1994 and are scheduled for completion in 1995.

GEOGRAPHY

The standards effort was led by the National Council for Geographic Education, in coordination with the Association of American Geographers, the National Geographic Society, and the American Geographical Society. One hundred professional geographers and geography teachers worked on several committees to help develop the standards. The standards were completed in 1994.

HISTORY

The standards effort was conducted by the National Center for History in the Schools at the University of California at Los Angeles. Focus groups from eight professional and scholarly organizations and representatives of the 29 organizations forming the National Forum for History Standards were involved. U.S. and world history standards were completed in 1994.

FOREIGN LANGUAGES

The American Council of the Teaching of Foreign Languages is leading the standards effort in collaboration with the American Association of Teachers of French, the American Association of Teachers of German, and the American Association of Teachers of Spanish and Portuguese. The standards were written by an 11-member task force. Draft standards were released in 1994 and are scheduled for completion in 1996.

The national standards projects are seeking to infuse both quality and accountability into education, and they are developing standards in the various subject areas to ensure a comprehensive, rigorous approach to learning in the nation's schools. The projects share the same commitment to establishing expectations for what children should accomplish at specific points in the course of their education based on broad-based national consensus among educators, scholars, business leaders, parents, and other stakeholders.

◆ *National content standards are intended to be voluntary, serving as models for state and local reform efforts, but are not to be used as a national curriculum.*

National content standards are intended to be voluntary, serving as models for state and local reform efforts, but are not to be used as a national curriculum. The standards projects are directly addressing the kind of learning that goes on in America's schools and the ability to measure this learning. Their efforts are built on the premise that without education standards, there is no realistic way to improve teaching or learning. Unless there are benchmarks that define what students should know and be able to do at distinct points in their schooling, there is no way to determine what students and the schools they attend are accomplishing.

2. What Are the Differences in the National Standards Projects?

The education standards resulting from these efforts are anything but standardized. The projects are highly diverse in terms of funding levels (ranging from $30,000 to more than $3 million), timelines, scope of participation, and specificity of learner outcomes. Some projects are developing detailed guidelines, while others are defining broad themes on which to base instruction. While all of the projects are identifying content standards which define what students should know and be able to do at specific grade levels, not all of them are defining performance standards which identify levels of achievement. The boards that oversee some of the standards projects comprise a high representation of scholars, while others rely more on teachers. Because the very idea of establishing uniform and unvarying standards for "what every American student should know and be able to do" is foreign to most school administrators and teachers, it will take the entire community of educators acting in concert with one another to implement the standards nationwide.

◆ *All of the national standards projects emphasize high standards of learning for all students. They reflect both educational research and the common-sense observation that children will work to the level expected of them.*

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3. How Are the National Standards Projects Addressing Student Diversity?

All of the national standards projects emphasize high standards of learning for *all* students. They reflect both educational research and the common-sense observation that children will work to the level expected of them. Standards establish expectations and are a formal way of ensuring high levels of learning for all students. The national standards projects emphasize active learning and the use of a wide array of instructional methods to meet diverse learning styles and needs. They also recognize that it will be unfair to expect students to meet achievement standards in any discipline unless those students are given reasonable opportunities to learn the skills and knowledge specified. They must have access to conditions which allow them to achieve the understandings and skills defined in the standards. The first three subject areas to complete content standards were mathematics (1989), U.S. and world history (1994), and the arts (1994). The equity and student diversity issues they addressed are summarized below.

Mathematics Standards and Student Diversity

The vision of the National Council of Teachers of Mathematics (NCTM) for a high-quality mathematics program is one in which all students have the opportunity to experience the essential components of mathematics training. The inclusion of all students in the core curriculum of the standards was emphasized—students with different talents and interests, gifted students, and students with disabilities. It was urged that teachers and other educators develop and experiment with approaches that present mathematics in a meaningful and productive way to students with varied abilities, cultural backgrounds, and interests. NCTM emphasized that "equitable practices in teaching and assessment benefit *all* students by focusing attention on *each* student's learning."

> *High standards of accomplishment should be expected of each student. Equitable assessment practices raise expectations for all students, clarify for all students what important mathematics is and what important ways of learning are, and respond to each student's unique qualities. These practices increase equity throughout the educational system.* (National Council of Teachers of Mathematics, 1989)

NCTM also emphasized that schools cannot continue to discourage women and minority students from the study of mathematics, stating that current tracking procedures often are inequitable and that "the social injustices of past schooling practices can no longer be tolerated. . . . We cannot afford to have the majority of our population mathematically illiterate. Equity has become an economic necessity." The serious under-representation of women and most minorities in careers using science

and technology was cited by NCTM, and mathematics was described as a critical filter for employment and full participation in society.

States that have implemented the NCTM standards have had to address how a mathematics program can work for students with wide-ranging abilities and interests. The state of California, one of the first to use a state curriculum framework based on the NCTM Standards as a master plan for reforming instruction, assessment, and staff development, identified the following key issues:

- Are decisions about placement made in the interest of lifting students to the most challenging course they can take?
- Do students and parents participate in decisions about placement?
- What services are available to help students with gaps in their skills and understandings participate fully in core mathematics programs?
- Can students with special interests in mathematics pursue mathematical issues with similarly interested peers while pursuing core programs?
- Are students from the various socioeconomic, gender, ethnic, and other groups represented in the school distributed equitably across the curriculum?
- Do courses ensure that all students will be able to maximize their mathematical education; i.e., not inhibit some students from studying advanced mathematics and restrict others to dead-end tracks?
- Do the teaching methods in all classes accommodate diversity and varied learning styles?
- Do all students have access to the same quality of technology?
- Do students have the chance to revise and resubmit their work until it meets quality standards?
- Do assessment methods assess mathematical thinking and understanding? Are assessment methods biased against any group? Are accommodations for students with disabilities considered and used?

(California Department of Education, 1992)

> ◆ *"Today's society expects schools to insure that all students have an opportunity to become mathematically literate, are capable of extending their learning, have an equal opportunity to learn, and become informed citizens capable of understanding issues in a technological society" (NCTM, 1991)*

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NCTM created a very positive vision of mathematics literacy for all students, emphasizing that "today's society expects schools to insure that all students have an opportunity to become mathematically literate, are capable of extending their learning, have an equal opportunity to learn, and become informed citizens capable of understanding issues in a technological society" (National Council of Teachers of Mathematics, 1991).

The History Standards and Student Diversity

One of the 15 standards-setting criteria determined by the National History Standards Council was that "standards should be equally expected of *all* students and all students should be provided equal access to the curricular opportunities necessary to achieving those standards" (National Center for History in the Schools, 1994). The Council affirmed that "the best education for the best should be the best education for all," and underscored its support for the following principles:

- Standards render present practices of discriminatory "lower tracks" and "watered down" curricula as wholly unacceptable for any students. These practices deny large sectors of the nation's children equal educational opportunities and adequate preparation for success in an increasingly demanding world.

- The National History Standards Project is part of a larger systemic reform movement. Efforts to equalize students' opportunities to learn through the funding of state and school district improvement plans are essential.

- "Every child is entitled to and must have equal access to excellence in the goals their teachers strive to help them achieve and in the instructional resources and opportunities required to reach those ends."

(National Center for History in the Schools, 1994)

◆ *"Standards should be equally expected of all students and all students should be provided equal access to the curricular opportunities necessary to achieving those standards." (National Center for History in the Schools, 1994)*

The history content standards contain a wealth of examples illustrating how students can demonstrate their understandings and skills. These examples are appropriate for students with diverse abilities and interests. In addition, they reflect widely varying approaches to instruction and highly creative methods for engaging students in activities which integrate historical thinking and understandings at all age levels.

The Arts Standards And Student Diversity

A key premise of the arts standards is that an education in the arts is for *all* students—"all students deserve access to the rich education and understanding that the arts provide, regardless of their background, talents, or disabilities" (Consortium of National Arts Education Associations, 1994). The standards establish a framework to bring high-quality arts education to the nation's schools, and "recognize that all students, including those with disabilities, those at risk, and the gifted and talented, deserve access to the knowledge and experience that the arts provide" (Fehrs-Rampolla, 1994). The philosophy underlying the standards is that the arts should be an integral part of the general education for all students. The arts are not just for "the talented," and talent should not be a factor in determining the value of the arts to an individual's basic education.

> ◆ *"All students deserve access to the rich education and understanding that the arts provide, regardless of their background, talents, or disabilities." (Consortium of National Arts Education Associations, 1994)*

> *In particular, students with disabilities, who are often excluded from arts programs, can derive great benefit from them. . . . As many teachers can testify, the arts can be a powerful vehicle—sometimes the best vehicle—for reaching, motivating, and teaching a given student.*
>
> *. . . [T]he argument that relegates the arts to the realm of passive experience for the majority, or that says a lack of "real talent" disqualifies most people from learning to draw, play an instrument, dance, or act, is simply wrong-headed. Clearly, students have different aptitudes and abilities in the arts, but differences are not disqualifications.* (Consortium of National Arts Education Associations, 1994)

The National Committee for Standards in the Arts recognized that the availability of resources to support arts education will be a major issue in addressing equal access to a high-quality arts program. For example, the Music Educators National Conference developed *Opportunity-to-Learn Standards for Music Instruction* (1994) which describes the types and levels of support necessary to achieve the national standards in areas related to curriculum and scheduling, staffing, materials and equipment, and facilities. Opportunities for students to attain the arts standards, however, will be widely uneven because of economic inequity across schools.

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PROFILES OF NATIONAL EDUCATION STANDARDS

The work of the National Council of Teachers of Mathematics demonstrated the power of national curriculum standards to drive education reform in a coherent manner and is regarded as a model for other national standards projects to follow.

The first groups to complete national education standards defining what American students should know and be able to do in specific subject areas were the National Council of Teachers of Mathematics (NCTM), the Consortium of National Arts Education Associations, the National History Standards Project, the Center for Civic Education, and the National Council for Geographic Education. These groups developed content standards for their disciplines through a broad-based consensus process involving thousands of educators, specialists, business leaders, and other stakeholders. Summaries of their work are profiled in this chapter.

Two national frameworks have influenced how expectations for student success were defined in national and state standards-setting reform efforts. The framework developed by the Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) defined the competencies and foundation skills necessary for work in the 21st century. The SCANS framework had a strong impact on the movement to create education standards and is influencing the curriculum standards being developed at national and state levels. The National Council on Education Standards and Testing (NCEST) endorsed the workplace competencies defined by SCANS, recommending they be integrated into national standards and assessments of core academic subjects. The National Center on Educational Outcomes (NCEO) at the University of Minnesota was funded by the Office of Special Education Programs, U.S. Department of Education, to develop a framework and set of outcome indicators for students with disabilities. The NCEO framework has influenced state reform efforts that have focused on improving the educational outcomes achieved by students receiving special education services. These two frameworks are also described in this chapter.

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1. WHAT IS THE PURPOSE OF THE MATHEMATICS STANDARDS AND HOW WERE THEY DEVELOPED?

The development of the mathematics standards preceded the current national movement to create education standards in the various subject areas and was unique because it evolved from the initiative of the professional community, not from the authority of a government agency. In the 1980s, the momentum to develop the mathematics standards came from the nation's mathematics teachers through a survey conducted by the National Council of Teachers of Mathematics (NCTM). The results of this survey showed widespread consensus among mathematics teachers that the need for curricular reform in mathematics was essential. NCTM concluded that the information-age economy requires mathematically literate workers with skills which exceed minimum competencies and include the ability to apply mathematical ideas to common and complex problems, use a variety of techniques to work on problems, and work with others to solve problems. NCTM called for a new vision of mathematical literacy to guide reform in school mathematics and prepare today's students to meet the challenges of tomorrow's society.

◆ *NCTM called for a new vision of mathematical literacy to guide reform in school mathematics and prepare today's students to meet the challenges of tomorrow's society.*

NCTM used private funds to develop content and evaluation standards for mathematics. Published in 1989, the NCTM *Curriculum and Evaluation Standards for Mathematics* were created through a broad-based consensus process involving a wide array of participants including business leaders, parents, mathematicians, and thousands of teachers who collaborated on what students should know and be able to do in mathematics. NCTM used a similar consensus process to develop the *Professional Standards for Teaching Mathematics* published in 1991, and the *Assessment Standards for School Mathematics*—released as a working draft in 1993—to expand upon assessment concepts contained in the original curriculum standards document.

The NCTM Standards represent an empowering vision of school mathematics based on the premise that *all* students need to learn more and different types of mathematics in order to be productive citizens in the 21st century. The NCTM vision is driven by the following four key assumptions:

- ***Mathematics is something a person does.*** Knowing mathematics means being able to use it in a productive way. To learn mathematics, students must be actively engaged in exploring, conjecturing, and thinking, rather than only rote learning.

- ***Mathematics has broad content that is useful in many fields.*** From the early grades, students can benefit from being exposed to a broad range of content that helps them understand the usefulness of mathematics in a technological society.

- ***Assessment should be an integral part of the teaching and learning process.*** It should be a routine part of ongoing classroom activity, not a separate event. Assessment should involve students in mathematical tasks and provide them with opportunities to demonstrate how they think and what they know.

- ***Every student is capable of developing mathematical power.*** The development of each student's ability to solve problems is essential in today's society. With proper instruction, all students can gain the necessary confidence, knowledge, and techniques to apply mathematics to everyday problems.

(National Council of Teachers of Mathematics, 1989)

The work of NCTM demonstrated the power of national curriculum standards to drive education reform in a coherent manner and is regarded as a model for other national standards projects to follow. Since their publication, the NCTM Standards have had a significant impact on curriculum development efforts, instructional practices, assessment, staff development, and teacher education at every level. Every commercial mathematics textbook published since 1989 has claimed to incorporate the NCTM standards, and according to NCTM, by 1992, about a third of the nation's mathematics teachers were using the new standards. A survey by the Council of Chief State School Officers indicated that at least 41 states have realigned or are in the process of realigning their state frameworks with the NCTM Standards.

2. How Are the Mathematics Standards Organized?

The NCTM Standards include 40 Curriculum (content) Standards and 14 Evaluation Standards. The standards set five overall goals for all students emphasizing that students need to learn to value mathematics; become confident in their ability to use mathematics; become mathematical problem-solvers; be able to reason mathematically; and be able to communicate mathematically.

The standards are built on the premise that *what* a student learns depends to a great degree on *how* he or she has learned it, and that problem-solving must be the focus of school mathematics. The Curriculum Standards were developed as K–12 standards organized by grade levels K–4, 5–8, and 9–12. Each standard is a statement of what the mathematics curriculum should include followed by descriptions of student activities and instructional examples. The content organization of the standards for the three levels is shown in Figure 8 below. The NCTM Standards show students studying much of the same mathematics taught previously in schools, but with a very different emphasis. The Standards also emphasize areas of mathematics that have received little attention in schools. (See Exhibits 1, 2, and 3 in the Appendix for examples of these shifts in emphasis.)

FIGURE 8

CONTENT OF THE MATHEMATICS CURRICULUM STANDARDS

Grades K–4	Grades 5–8	Grades 9–12
1. Mathematics as Problem-Solving	1. Mathematics as Problem-Solving	1. Mathematics as Problem-Solving
2. Mathematics as Communication	2. Mathematics as Communication	2. Mathematics as Communication
3. Mathematics as Reasoning	3. Mathematics as Reasoning	3. Mathematics as Reasoning
4. Mathematical Connections	4. Mathematical Connections	4. Mathematical Connections
5. Estimation	5. Number Sense and Number Relationships	5. Algebra
6. Number Sense and Numeration	6. Number Systems and Number Theory	6. Functions
7. Concepts of Whole Number Operations	7. Computation and Estimation	7. Geometry (synthetic)
8. Whole Number Computation	8. Patterns and Functions	8. Geometry (algebraic)
9. Geometry and Spatial Sense	9. Algebra	9. Trigonometry
10. Measurement	10. Statistics	10. Statistics
11. Statistics and Probability	11. Probability	11. Probability
12. Fractions and Decimals	12. Geometry	12. Discrete Mathematics
13. Patterns and Relationships	13. Measurement	13. Calculus (conceptual underpinnings)
		14. Mathematical Structure

(National Council of Teachers of Mathematics, 1989)

NCTM considers the content of the Curriculum Standards appropriate for *all* students, while recognizing that students exhibit different talents, abilities, achievements, needs, and interests in relation to mathematics. The mathematics of the core curriculum was designed to be sufficiently broad and deep so that students' options for further study would not be limited and all students would have the opportunity to develop essential problem-solving skills.

The Evaluation Standards include three standards which discuss general assessment strategies; seven standards which can be used by teachers to make judgements about students' mathematical progress; and four standards which administrators and instructional staff can use to make judgements about the quality of a school or district's mathematics program and the effectiveness of instruction. The Evaluation Standards propose that student assessment be integral to instruction and that multiple means of assessment be used. In 1993, NCTM defined the following Assessment Standards to expand and complement the Evaluation Standards:

- *Important Mathematics*: Assessment should reflect the mathematics that is most important for students to learn.
- *Enhanced Learning*: Assessment should enhance mathematics learning.
- *Equity*: Assessment should promote equity by giving each student optimal opportunities to demonstrate mathematical power and by helping each student meet the profession's high expectations.
- *Openness*: All aspects of the mathematics assessment process should be open to review and scrutiny.
- *Valid Inferences*: Evidence from assessment activities should yield valid inferences about students' mathematical learning.
- *Consistency*: Every aspect of an assessment process should be consistent with the purposes of assessment.

NCTM also has produced several other reports focussing on assessment issues. These include in chronological order *Guidelines for Evaluating Student Learning in Mathematics* (1988); *Mathematics Assessment: Myths, Models, Good Questions, and Practical Suggestions* (1991); and *Assessment in the Mathematics Classroom* (1993).

3. What Do the Mathematics Standards Mean for Schools?

> ❖ *The standards present a vision of school mathematics in which students develop their knowledge and construct their own mathematical understanding through active experience with real-world problems and problem-solving strategies.*

The NCTM Standards have sent strong messages to schools about new approaches to mathematics instruction, indicating that many teaching strategies must be altered. Key principles emphasized in the standards are: (1) that *knowing* mathematics is *doing* mathematics, and that instruction should persistently emphasize active problem-solving; (2) that the curriculum should provide *all* students with opportunities to apply mathematics to many

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fields; and (3) that all students should have access to calculators and computers as tools that facilitate the use of mathematics.

The standards present a vision of school mathematics in which students develop their knowledge and construct their own mathematical understanding through active experience with real-world problems and problem-solving strategies. They emphasize that students must experience genuine problems regularly and that instruction should vary and include opportunities for both group and individual assignments, project work, and discussion between teacher and students as well as among students. Decreased attention is given to: (1) the teacher and text as exclusive sources of knowledge; (2) rote memorization of facts; and (3) extended periods of individual seatwork practicing routine tasks. Problem solving becomes a means as well as a goal of instruction, assessment of learning is an integral part of instruction, and effective questioning techniques that promote student discussion and interaction are emphasized. Student communication of mathematical ideas orally and in writing is stressed, and the use of calculators and computers as tools for learning is viewed as essential.

Figure 9 shows shifts in emphasis from current assessment approaches to the types of assessment practices recommended in the NCTM Evaluation Standards. Figure 10 depicts the changes in instructional practices reflected in the NCTM Curriculum Standards at the K–4, 5–8, and 9–12 grade levels.

FIGURE 9

THE NCTM EVALUATION STANDARDS: CHANGES IN ASSESSMENT PRACTICES

INCREASED ATTENTION	DECREASED ATTENTION
• Assessment as an integral part of instruction which focuses on what students know and how they think about mathematics	• Having assessment be simply counting correct answers on tests for the sole purpose of assigning grades
• Focusing on a broad range of mathematical tasks that relate to a holistic view of mathematics	• Focusing on a large number of specific and isolated skills
• Developing problem situations that require the application of a number of mathematical ideas	• Using exercises or word problems requiring only one or two skills
• Using multiple assessment techniques, including written, oral, and demonstration formats	• Using only written tests
• Using calculators, computers, and manipulatives in assessment	• Excluding calculators, computers, and manipulatives from the assessment process
• Use of many indicators of program outcomes	• Use of norm-referenced standardized achievement tests as the only indicator of program outcomes (National Council of Teachers of Mathematics, 1989)

FIGURE 10

THE NCTM CURRICULUM STANDARDS:
CHANGES IN INSTRUCTIONAL PRACTICES

	INCREASED ATTENTION	DECREASED ATTENTION
K–4	• Use of manipulative material • Cooperative work • Discussion of mathematics • Questioning • Justification of thinking • Writing about mathematics • Problem-solving approach to instruction • Content integration • Use of calculators and computers	• Rote practice • Rote memorization of rules • One answer and one method • Use of worksheets • Written practices • Teaching by telling
5–8	• Actively involving students individually and in groups in exploring, conjecturing, analyzing, and applying mathematics in both a mathematical and a real-world context • Using appropriate technology for computation and exploration • Using concrete materials • Being a facilitator of learning • Assessing learning as an integral part of instruction	• Teaching computations out of context • Drilling on paper-and-pencil algorithms • Teaching topics in isolation • Stressing memorization • Being the dispenser of knowledge • Testing for the purpose of assigning grades
9–12	• The active involvement of students in constructing and applying mathematical ideas • Problem solving as a means as well as a goal of instruction • Effective questioning techniques that promote student interaction • The use of a variety of instructional formats (small groups, individual explorations, peer instruction, whole-class discussions, project work) • The use of calculators and computers as tools for learning and doing mathematics • Student communication of mathematical ideas orally and in writing • The establishment and application of the interrelatedness of mathematical topics • The systematic maintenance of student learnings and embedding review in the context of new topics and problem situations • The assessment of learning as an integral part of instruction	• Teacher and text as exclusive sources of knowledge • Rote memorization of facts and procedures • Extended periods of individual seatwork practicing routine tasks • Instruction by teacher exposition • Paper-and-pencil manipulative skill work • The relegation of testing to an adjunct role with the sole purpose of assigning grades

(National Council of Teachers of Mathematics, 1989)

1. WHAT IS THE PURPOSE OF THE ARTS STANDARDS AND HOW WERE THEY DEVELOPED?

The national arts standards define for the first time what all students should know and be able to do in dance, music, theater, and the visual arts. With the passage of the *Goals 2000: Educate America Act,* the arts were included in the National Education Goals as a core academic subject, thus making the arts standards part of the national standards-setting process to define benchmarks for student learning. This has created a window of opportunity for the arts to be established as an integral part of the core curriculum for *all* students.

> ◆ *"If our civilization is to continue to be both dynamic and nurturing, its success will ultimately depend on how well we develop the capacities of our children, not only to earn a living in a vastly complex world, but to live a life rich in meaning." (Consortium of National Arts Education Associations, 1994)*

The arts standards were developed by the Consortium of National Arts Education Associations which includes the American Alliance for Theatre and Education, the Music Educators National Conference, the National Art Education Association, and the National Dance Association. The standards resulted from an extended process of consensus-building among the membership of the four groups and was overseen by a 35-member board of artists and educators. The process drew upon state-level arts education frameworks and standards from other nations. In 1994, the final standards were released and disseminated in the publication *National Standards for Arts Education: What Every Young American Should Know and Be Able to Do in the Arts*. The arts standards project was the first of the seven federally funded standards-setting projects to complete the task of defining standards.

The standards are built on the premise that "no one can claim to be truly educated who lacks basic knowledge and skills in the arts." Further, these standards attempt to render, in operational terms, the value and importance of the arts for the educational well being of students and society. "If our civilization is to continue to be both dynamic and nurturing, its success will ultimately depend on how well we develop the capacities of our children, not only to earn a living in a vastly complex world, but to live a life rich in meaning" (Consortium of National Arts Education Associations, 1994).

The standards are based on the following core beliefs about the importance of the arts to life and learning:

- Arts education cultivates the whole child. "Knowing and practicing the arts disciplines are fundamental to the healthy development of children's minds and spirits."
- The arts are worth learning for their own sake, have great value and significance for daily life, and offer unique sources of enjoyment.
- An education in the arts helps students identify, appreciate, and participate in the traditional art forms of their own communities.
- Arts education helps students develop the intellectual skills and attitudes necessary for participating effectively in today's society. "The arts teach self-discipline, reinforce self-esteem, and foster the thinking skills and creativity so valued in the workplace."

(Consortium of National Arts Education Associations, 1994)

The standards are intended to advance both quality and accountability in arts education and provide a vision of both competence and educational effectiveness without "creating a mold into which all arts programs must fit" (Consortium of National Arts Education Associations, 1994). There are 82 "deliberately broad" benchmarks that concern results, but do not recommend specific methods of instruction for achieving those results, thus encouraging local curricular objectives and flexibility in classroom instruction.

2. How Are the Arts Standards Organized?

The National Standards for Arts Education include both content standards and achievement standards for dance, music, theater, and visual arts organized by grade levels K–4, 5–8, and 9–12. The *content standards* specify what children should know and be able to do in the arts disciplines. *Achievement standards* specify the understandings and levels of achievement that students are expected to attain, for each of the arts, at the end of grades 4, 8, and 12. In grades 9–12, two levels of achievement standards—"Proficient" and "Advanced"—are offered, with the "Advanced" level more likely to be attained by students who have elected specialized courses in the arts. All students, however, are expected to achieve at the "Proficient" level in at least one type of art. The standards ask that students completing secondary school be able to:

- *Communicate at a basic level in the four arts disciplines—dance, music, theater, and the visual arts.*
- *Communicate proficiently in at least one art form.*
- *Develop and present basic analyses of works of art.*
- *Have an informed acquaintance with exemplary works of art from a variety of cultures and historical periods.*
- *Be able to relate various types of arts knowledge and skills within and across the arts disciplines.*

(Consortium of National Arts Education Associations, 1994)

The arts standards help define what a good education in the arts should provide, recognizing that because students may work in different arts and different times, their study may take a variety of approaches, and their abilities may develop at different rates. The standards require that an education in the arts be "a comprehensive sequenced enterprise of learning across the four arts disciplines; and that students be grounded in knowledge, disciplinary skills, techniques, and particularly the thinking skills that infuse the arts" (Arts Standards Implementation Task Force, 1994). Students are expected to work toward "comprehensive competence from the very beginning, preparing in the lower grades for deeper and more rigorous work each succeeding year" (Consortium of National Arts Education Associations, 1994). Figure 11 depicts the K–12 content standards defined for the four disciplines. Exhibit 4 in the Appendix provides an example of how a content standard in music is translated into achievement standards at the various grade levels.

3. What Do the Arts Standards Mean for Schools?

The arts standards place the arts within the core curriculum of the school and, thus, call for a far more ambitious, sequential form of arts instruction than most schools have ever offered. The standards attempt to put as much emphasis on learning about art, analyzing it, and understanding its aesthetic cultural and historical significance as they do on actually "doing the art." They also urge students to examine connections between the arts and other disciplines. This marks a major shift from the traditional orientation toward performance in school arts programs (Viadero, 1994b).

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All national standards are voluntary for schools, and therein lies the challenge. The most difficult task will be to persuade states and school districts to adopt the standards for a subject area that many consider a luxury. Supporters of the arts standards must contend with a system in which arts programs are optional and not viewed as "academic." There are considerable demands on the use of instructional time in every school, and the arts standards will raise major issues about the time devoted to the arts as part of the school's core curriculum. In addition to devoting more time to the arts, implementing the standards will also require schools to invest considerably more resources in their arts programs and hire more staff with broader talents. Arts education will be competing for scarce resources within the overall school program, and it is likely that the four arts disciplines will have to compete with each other for budgetary support.

> *The constraints on implementing higher standards are as obvious as they are disheartening. How do arts teachers successfully address opportunities to learn when instructional time with students is insufficient and classes are overcrowded? How do teachers make good instructional decisions without the time to plan and exchange information and ideas with their colleagues? How do arts teachers teach to the new standards with inadequate staff training or professional development?* (Fehrs-Rampolla, 1994)

Programs vary widely in schools, so the task will be more difficult for some schools than for others. Some schools offer outstanding programs that attract a large percentage of the student population. In other schools, programs are limited and reach only a small number of students. Visual arts and music are offered in most elementary schools but with wide variations. For example, the National Music Educators Conference estimates that the time allotted for elementary music ranges from 20 to 120 minutes per week. Dance and theater programs are less prevalent. About one-fourth of elementary schools offer instruction in theater arts while dance programs are virtually nonexistent outside of physical education (Viadero, 1994b).

Limited public knowledge about the arts and the value and benefits of arts education is seen as a major barrier to the implementation of the standards. "Because the arts are often viewed as an educational frill, they have not enjoyed a secure position in many schools and districts, or in the mind of the public, when it comes to defining what is important in education" (Arts Standards Implementation Task Force, 1994). Policy provisions will be necessary at state and local levels to

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address the place of the arts in the core curriculum. Teachers and advocates in the arts community will have to persuade parents, school boards, state education agencies, legislative bodies, and business leaders of the importance of the arts to a well-rounded education and a meaningful life. Supporters hope that inclusion of the arts in Goals 2000 as a "core subject" will help convince the public to support arts education, and that national attention to the new benchmarks will revitalize efforts to include the arts as an integral part of the school program.

FIGURE 11

CONTENT STANDARDS FOR ARTS EDUCATION

Dance

1. Identifying and demonstrating movement elements and skills in performing dance.
2. Understanding choreographic principles, processes, and structures.
3. Understanding dance as a way to create and communicate meaning.
4. Applying and demonstrating critical and creative thinking skills in dance.
5. Demonstrating and understanding dance in various cultures and historical periods.
6. Making connections between dance and healthful living.
7. Making connections between dance and other disciplines.

Music

1. Singing, alone and with others, a varied repertoire of music.
2. Performing on instruments, alone and with others, a varied repertoire of music.
3. Improvising melodies, variations, and accompaniments.
4. Composing and arranging music within specified guidelines.
5. Reading and notating music.
6. Listening to, analyzing, and describing music.
7. Evaluating music and music performances.
8. Understanding relationships between music, the other arts, and disciplines outside the arts.
9. Understanding music in relation to history and culture.

Visual Arts

1. Understanding and applying media, techniques, and processes.
2. Using knowledge of structures and functions.
3. Choosing and evaluating a range of subject matter, symbols, and ideas.
4. Understanding the visual arts in relation to history and cultures.
5. Reflecting upon and assessing the characteristics and merits of their work and the work of others.
6. Making connections between visual arts and other disciplines.

(Consortium of National Arts Education Associations, 1994)

Theatre

1. Script writing based on personal experience and heritage, imagination, literature, and history by: planning and recording improvisations (K–4); the creation of improvisations and scripted scenes (5–8); and improvising, writing, and refining scripts (9–12).
2. Acting by: assuming roles and interacting in improvisations (K–4); developing basic acting skills to portray characters who interact in improvised and scripted scenes (5–8); and developing, communicating, and sustaining characters in improvisations and informal or formal productions (9–12).
3. Designing by: visualizing and arranging environments for classroom dramatizations (K–4); developing environments for improvised and scripted scenes (5–8); and designing and producing by conceptualizing and realizing artistic interpretations for informal or formal productions (9–12).
4. Directing by: planning classroom dramatizations (K–4); organizing rehearsals for improvised and scripted scenes (5–8); and interpreting dramatic texts and organizing and conducting rehearsals for informal or formal productions (9–12).
5. Researching by: finding information to support classroom dramatizations (K–4); using cultural and historical information to support improvised and scripted scenes (5–8); and evaluating and synthesizing cultural and historical information to support artistic choices (9–12).
6. Comparing and connecting art forms by describing theatre, dramatic media (such as film, television, and electronic media), and other art forms (K–4); comparing and incorporating art forms by analyzing methods of presentation and audience response for theatre, dramatic media, and other art forms (5–8); and comparing and integrating art forms by analyzing traditional theatre, dance, music, and visual arts, and new art forms (9–12).
7. Analyzing and: explaining personal preferences and constructing meanings from classroom dramatizations and from theatre, film, television, and electronic media productions (K–4); evaluating and constructing meanings from improvised and scripted scenes and from theatre, film, television, and electronic media productions (5–8); and critiquing, and constructing meanings from informal and formal theatre, film, television, and electronic media productions (9–12).
8. Understanding context by: recognizing in daily life (K–4), analyzing in community and in other cultures (5–8), and analyzing in the past and present (9–12) the role of theatre, film, television, and electronic media.

1. WHAT IS THE PURPOSE OF THE NATIONAL HISTORY STANDARDS, AND HOW WERE THEY DEVELOPED?

Through a broad-based process involving representatives of many education groups, the National History Standards Project defined: (1) the purposes of history in the school curriculum; and (2) the specific historical understandings and reasoning processes all students should have equal opportunity to acquire over 13 years of precollegiate education. The project completed the development of content standards for U.S. and world history and plans to develop performance standards that will define levels of student achievement. Funded by the National Endowment for the Humanities and the U.S. Department of Education, the project is administered by the National Center for History in the Schools, based at the University of California at Los Angeles.

Organizational Structure of the Project

- The 28-member National Council for History Standards, which is responsible for providing policy direction and general oversight of the Project, includes the present or immediate past presidents of such large-membership organizations as the Council of Chief State School Officers (CCSSO), the Association for Supervision and Curriculum Development (ASCD), the Council of State Social Studies Specialists, the National Council for the Social Studies, the American Historical Association, the Organization of American Historians, the National Council for History Education, and the Organization of History Teachers. The Council also includes representatives from the 1994 National Assessment of Educational Progress (NAEP) in United States History, and the National Council for Education Standards and Testing.

- The National Forum for History Standards, which consists of representatives from 29 major organizations concerned with history in schools, provides an advisory function to the Project.

- Nine Organizational Focus Groups of approximately 15 members each, chosen from the organizations represented on the National Council of History Standards, were contracted to provide advisory, review, and consulting services to the project.

- Three 15-member Curriculum Task Forces, composed mostly of experienced classroom teachers recommended by the participating organizations, were responsible for developing the U.S. history standards at the K–4 and 5–12 grade levels.

Key Assumptions Guiding the Development of the History Standards

Central to the development of the history standards is the belief that *knowledge of history is the precondition of political intelligence.*

> *Without history, a society shares no common memory of where it has been, of what its core values are, or of what decisions of the past account for present circumstances. Without history, one cannot undertake any sensible inquiry into the political, social, or moral issues in society. And without historical knowledge and the inquiry it supports, one cannot move to the informed, discriminating citizenship essential to effective participation in the democratic processes of governance and the fulfillment for all our citizens of the nation's democratic ideals.* (National Center for History in the Schools, 1994)

The following key assumptions guided the development of the history standards.

- Today's students need a comprehensive understanding of the history of the world and other cultures and civilizations who have developed ideas, institutions, and ways of life different from the students' own.

- History is an integration of five spheres of human activity: social, scientific/technological, economic, religious/philosophical, and political; and these spheres of activity are interwoven within the lives of individuals and societies.

- Properly taught, history develops capacities for analysis and judgment, training students to detect bias, weigh evidence, and evaluate arguments, as a basis for making sensible, independent judgments.

One of the greatest challenges of the National History Standards Project was to decide what, "of the great storehouse of human history," is the most significant for students to learn, and "what skills in historical reasoning, values analysis, and policy thinking are essential." To address these core issues, the project defined specific criteria for developing history standards which are shown in Exhibit 5 in the Appendix.

2. How Are the History Standards Organized?

The content standards for U.S. history define what children should know and be able to do and address both the major reasoning processes associated with historical thinking, and the central, core understandings students should have the opportunity to acquire. The project first developed standards in five fields of historical thinking and presented them independent of historical content to specify the quality of thinking for each. Figure 12 depicts these standards for the fields of

◆ *Today's students need a comprehensive understanding of the history of the world and other cultures and civilizations who have developed ideas, institutions, and ways of life different from the students' own.*

historical chronology, historical comprehension, historical analysis and interpretation, historical issues-analysis and decision-making, and historical research. As an essential condition of history learning, the National History Standards Project emphasized that neither historical knowledge nor thinking develops independent of the other. Thus, the project developed content standards for U.S. history that integrate the thinking process with historical content.

The standards developed for the K–4 grade levels provide a resource for teachers to extend their social studies programs for primary level children. Examples are provided that integrate classroom instruction in history with instruction in geography, civics, economics, literature, and the arts. At the 5–12 grade levels, the content standards are organized around ten chronological eras. While recognizing the difficulties in periodizing history, the project participants believed that teachers would appreciate some chronological structure.

> *We have tried to overcome, in part, the difficulties in periodizing history by overlapping eras to demonstrate that there really is no such thing as an era beginning or ending, and that all such schemes are simply the historian's way of trying to give some structure to the course of history.* (National Center for History in the Schools, 1994)

The National History Standards Project used the example shown in Figure 13 to illustrate the approach taken in integrating understandings and thinking in the standards. The standards present a statement defining what students should know followed by descriptions that specify what students should be able to do to demonstrate their understanding. Examples are then provided of appropriate achievement expectations at three levels of schooling.

In an approach similar to that taken with the U.S. history standards, the world history standards present standards for the five areas of historical thinking prior to integrating them with historical content standards. The world history standards were developed for grades 5–12 and are organized around eight chronological eras.

3. What Do the History Standards Mean for Schools?

> ◆ *Compared with traditional approaches to teaching history, the standards place more emphasis on active learning, critical thinking skills, developing students' capacities for analysis and judgement, integrative cross-disciplinary learning, and student access to a wide variety of information sources.*

Compared with traditional approaches to teaching history, the standards place more emphasis on active learning, critical thinking skills, developing students' capacities for analysis and judgement, integrative cross-disciplinary learning, and student access to a wide variety of information sources. By developing standards for the K–4 grade levels, the National History Standards Project underscored that from the earliest elementary school years, children are able to learn the meanings of history and the methods of historians. Traditionally, the study of history starts at the fourth grade when students begin to learn the history of their own state. The history standards try to make teachers aware that students can grasp historical information at a young age and infuse more history, literature, and historical thinking into primary-level instruction. Many history-oriented literary selections for children are recommended to enable elementary teachers who teach many subjects to fit in more history by integrating it with the study of literature (Viadero, 1994a).

The history standards promote active questioning and learning rather than the passive absorption of facts, dates, and names, a practice common in history studies. They involve such tasks as engaging in historical reasoning, thinking through cause-and-effect relationships, reaching sound historical interpretations, and conducting historical inquiries and research. There is more emphasis on training students to weigh evidence and evaluate arguments. History is viewed as an integrative, multi-disciplinary field involving social, scientific/technological, economic, philosophical, and political concepts, and these spheres of activity overlap in the standards.

The National Council for History Standards also emphasize the importance of a global context for developing student understanding. More emphasis than previously is placed on studying the world's many cultures and "having students see matters through others' eyes." History is viewed as an essential vehicle for fostering understandings that are important to an increasingly pluralistic society and interdependent world.

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FIGURE 12

HISTORICAL THINKING STANDARDS	
Historical Chronology *To demonstrate chronological thinking, students should be able to:*	1. Distinguish between past, present, and future time. 2. Identify in historical narratives the temporal structure of the story. 3. Establish temporal order in constructing their own historical narratives. 4. Measure calendar time by days, weeks, months, years, decades, centuries, and millennia. 5. Calculate calendar time from fixed points of the calendar system. 6. Interpret the data presented in time lines. 7. Create time lines. 8. Reconstruct patterns of historical succession and duration. 9. Compare alternative models of periodization by identifying organizing principles on which each is based.
Historical Comprehension *To demonstrate historical comprehension, students should be able to:*	1. Reconstruct the literal meaning of a historical passage. 2. Identify the central question(s) the historical narrative attempts to address and the purpose, perspective, or point of view from which it has been constructed. 3. Read historical narrative imaginatively. 4. Evidence historical empathy. 5. Draw upon the data in historical maps in order to obtain or clarify information on the geographic setting in which the event occurred. 6. Draw upon the visual and mathematical data presented in graphics. 7. Draw upon the visual data presented in photographs, paintings, cartoons, and architectural drawings.
Historical Analysis and Interpretation *To demonstrate critical thinking in their analyses and interpretation of historical documents, narratives, and arguments, students should be able to:*	1. Identify the author of the historical document or narrative and assess its credibility. 2. Compare and contrast differing sets of ideas, values, personalities, behaviors, and institutions by identifying likenesses and differences. 3. Differentiate between historical facts and historical interpretations. 4. Consider multiple perspectives in the records of human experience. 5. Incorporate multiple causes in analyses and explanations of historical action. 6. Challenge arguments of historical inevitability. 7. Compare competing historical narratives. 8. Hold interpretations of history as tentative. 9. Evaluate major debates among historians. 10. Hypothesize about the influence of the past on the present.
Historical Issues-Analysis and Decision-Making *To demonstrate the skills of historical issues–analysis and decision–making, students should be able to:*	1. Identify issues and problems in the past and analyze the interests, values, perspectives, and points of view of those involved in the situation. 2. Marshall evidence of antecedent circumstances and contemporary factors contributing to the problem and alternative courses of action. 3. Identify relevant historical antecedents and appropriate historical analogies. 4. Evaluate alternative courses of action. 5. Formulate a position or course of action on an issue. 6. Evaluate the implementation of a decision.
Historical Research *To demonstrate creative thinking in developing sound historical narratives and arguments, students should be able to:*	1. Formulate historical questions from various encounters with the past. 2. Obtain needed historical data from a variety of sources. 3. "Interrogate the data," uncovering the context in which it was created. 4. Identify the gaps in the available records and marshal contextual knowledge and perspectives of the time and place.

(National Center for History in the Schools, 1994)

FIGURE 13: EXAMPLE LINKING STANDARD 1 AND ERA 3 (REVOLUTION AND THE NEW NATION)

Statement of the historical understandings that students should acquire

Students Should Know: The causes of the American Revolution, the ideas and interests involved in forging the revolutionary movement, and the reasons for the American victory.

Students Should Be Able To:

Statement identifying the first component of Standard 1: the causes of the American Revolution

1A: Demonstrate understanding of the causes of the American Revolution by:

Statements integrating thinking skills with the particular historical understandings required for mastery of 1A

- Explaining the consequences of the Seven Years War and the overhaul of English imperial policy following the Treaty of Paris in 1763, demonstrating the connections between the antecedent and consequent events. **[Explain consequences of an event.]**
- Comparing the arguments advanced by defenders and opponents of the new imperial policy on the traditional rights of English people and the legitimacy of asking the colonies to pay a share of the costs of the empire. **[Compare multiple perspectives.]**
- Reconstructing the chronology of the critical events leading to the outbreak of armed conflict between the American colonies and England. **[Construct temporal order of events.]**
- Analyzing the connection between political ideas and economic interests and comparing the ideas and interests of different groups. **[Consider differing motives, interests, and beliefs.]**
- Reconstructing the arguments among patriots and loyalists about independence and drawing conclusions about how the decision to declare independence was reached. **[Consider multiple perspectives.]**

Appropriate levels of achievement for grades 5 and 6, provided this era in U.S. history is taught in these grades in the local school curriculum

Grades 5–6: Achievement of Content Standard 1A will be demonstrated if students are able to:

- Identify such major consequences of the Seven Years War as the English victory, the removal of the French as a contending power in North America, and the reduced need of the colonists for protection by the mother country.
- Select, chronologically order, and explain the major events leading to the outbreak of conflict at Lexington and Concord.
- Create historical arguments or narratives explaining at least one reason why the English Parliament felt it was justified in taxing the colonies to help pay for a war fought in their defense and at least one reason why the colonists, claiming their rights as Englishmen, challenged the legitimacy of the new taxes as "taxation without representation."

Appropriate levels of achievement for grades 7 and 8, provided this era in U.S. history is taught in these grades in the local school curriculum.

Grades 7–8: Achievement of Standard 1A can be demonstrated if students:

- Assemble the evidence, including the consequences, of the Seven Years War, England's new imperial policy and the voices of such resistance leaders as John Adams, Thomas Jefferson, John Dickinson, Thomas Paine, Patrick Henry, and Samuel Adams, and construct a sound historical argument on such questions as: *Was it reasonable for the English to tax the colonists to help pay for a war fought in their defense? Were the American colonies justified in their resistance to England's new imperial policies?*

- Explain the divisions in the colonies over these issues by comparing the interests and positions of Loyalists and Patriots from different economic groups such as northern merchants, southern rice and tobacco planters, yeoman farmers, and urban artisans.

- Marshal historic evidence including events leading up to "the shot heard 'round the world" and develop a historical argument on such questions as the following: *Was the outbreak of conflict at Lexington and Concord probable? Could any action at that point have prevented war with England?*

Appropriate levels of achievement for grades 9 through 12, provided this era in U.S. history is taught in these grades in the local school curriculum.

Grades 9–12: Achievement of Standards 1A can be demonstrated if students:

- Draw upon the arguments advanced by opponents and defenders of England's new imperial policy in order to construct a sound historical argument or narrative on such questions as: *Were the arguments against Parliamentary taxation a legitimate and constitutional defense of the historic and traditional rights of Englishmen under common law, or were they merely a defense for tax evasion? Was the British decision to station troops in the colonies at the end of the Seven Years War designed to defend the colonies or did it reflect a conscious decision to keep contentious and expansionist colonists under control?*

- Draw upon evidence of the mounting crisis as well as the efforts in Parliament and in the colonies to prevent a rupture with the mother country in order to construct a sound historical narrative or argument on such questions as: *Was the break with England avoidable? Could decisions on either side, other than those which were taken, have changed the circumstances leading to the escalation of the crisis and the outbreak of war?*

- Construct a historical narrative analyzing the factors which explain why a person chose to be a Loyalist or a Patriot. *Why did approximately one-third of the colonists want to remain neutral? Did economic and social differences play a role in how people chose sides? Explain.*

- Marshal evidence to explain how a Loyalist and a Patriot would view each the following: The Tea Act of 1773, the Boston Tea Party, the "Intolerable" Acts, the cause of the skirmish at Lexington Green. *How might a Loyalist have re-written the natural rights theory of the Declaration of Independence? How might a Loyalist have answered the charges in the Declaration of Independence?*

(Example taken from *Progress Report and Abridged Draft Standards*, pp. 33-34)

1. WHAT IS THE PURPOSE OF THE NATIONAL STANDARDS FOR CIVICS AND GOVERNMENT AND HOW WERE THEY DEVELOPED?

National content standards for civics and government were developed by the Center for Civic Education to help schools prepare students to be competent and responsible citizens committed to the fundamental values and principles of American constitutional democracy (Center for Civic Education, 1994). This civic mission of schools was directly reflected in the National Education Goals included in the *Goals 2000: Educate America Act*.

> Goal 3: Student Achievement and Citizenship
> *By the year 2000, all students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including . . . civics and government . . . so that they may be prepared for responsible citizenship, further learning, and productive employment . . . .*
>
> *All students will be involved in activities that promote and demonstrate . . . good citizenship, community service, and personal responsibility.*
>
> Goal 6: Adult Literacy and Lifelong Learning
> *By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to . . . exercise the rights and responsibilities of citizenship.*

The purpose of the civics and government standards is to help students understand:

- How their own and other political systems work.
- The relationship of American politics and government to world affairs.
- The linkages between civics and government and their own lives.
- The rights and responsibilities of citizens.
- The meaning of responsible participation in political life.

In developing the content standards for civics and government, the Center for Civic Education conducted more than 100 open hearings and public discussions to obtain broad input on what students should know and be able to do in the study of citizenship and government. Over a two-year period, more than a thousand teachers and other educators, scholars, parents, elected officials, and

representatives of public and private organizations and groups critiqued successive drafts of the standards, which were completed in 1994.

2. How Are the Civics and Government Standards Organized?

◆ *National content standards for civics and government were developed to help schools prepare students to be competent and responsible citizens committed to the fundamental values and principles of American constitutional democracy.*

The content standards were developed as "exit" standards specifying what students should know and be able to do in the field of civics and government as they complete the 4th, 8th, and 12th grades. They specify not only the content to be mastered, but also what students should be able to do in relation to that content. They incorporate: (1) the knowledge students should acquire and the understandings they should develop; (2) the intellectual skills necessary for thinking critically about government and political issues; and (3) the participatory skills required for competent participation in the political process.

The standards for civics and government are multidisciplinary, drawing from the fields of political science, political philosophy, history, economics, and law. They are organized around the following questions for the K–4 and 5–12 grade levels:

K–4:
1. *What is government and what should it do?*
2. *What are the basic values and principles of American democracy?*
3. *How does the government established by the constitution embody the purposes, values, and principles of American democracy?*
4. *What is the relationship of the United States to other nations and to world affairs?*
5. *What are the roles of the citizen in American democracy?*

5–12:
1. *What are civic life, politics, and government?*
2. *What are the foundations of the American political system?*
3. *How are the values and principles of American constitutional democracy embodied in the government established by the constitution?*
4. *What is the relationship of American politics and government to world affairs?*
5. *What are the roles of the citizen in American democracy?*

Examples of content standards for high school students are shown in Figure 14. The Center for Civic Education has also developed illustrative performance standards which specify criteria to be used in evaluating how well students attain the content standards. The performance standards

specify three levels of increasingly sophisticated student responses (basic, proficient, and advanced), each expanding upon the previous level.

FIGURE 14

SAMPLE OF STANDARDS FOR CIVICS AND GOVERNMENT

The following standards for grades 9–12 are excerpts from the final draft document of civics and government standards for the nation's schools:

Political parties, campaigns, and elections. *Students should be able to evaluate, take, and defend positions about the roles of political parties, campaigns, and elections in American politics.*

To achieve this standard, students should be able to:

- Describe the origins and development of the two-party system in the United States.
- Evaluate the role of third parties in the United States.
- Explain how and why American political parties differ from ideological parties in other countries.
- Explain the major characteristics of American political parties, how they vary by locality, and how they reflect the dispersion of power providing citizens numerous opportunities for participation.
- Explain the purposes of political parties, including their role in channeling public opinion, aggregating power, and allowing people to act jointly.
- Describe the role of parties in nominating candidates, conducting campaigns and training future leaders at local, states, and national levels.
- Explain why political parties in the United States are weaker today than they have been at some times in the past.
- Describe varied types of elections, e.g., primary and general; local and state; congressional and presidential; initiatives; referenda; and recall.
- Evaluate the significance of campaigns and elections in the American political system.
- Evaluate current criticisms of campaigns and proposals for their reform.

Making and implementing United States foreign policy. *Students should be able to evaluate, take, and defend positions about how United States foreign policy is made and the means by which it is carried out.*

To achieve this standard, students should be able to:

- Explain the powers the Constitution gives to the president, the Congress, and the federal judiciary in foreign affairs and how these powers have been used over time.
- Describe the process by which United States foreign policy is made, including the roles of federal agencies, domestic interest groups, the public, and the media.
- Describe the various means used to attain the ends of United States foreign policy, such as diplomacy; economic, military and humanitarian aid; treaties, sanctions; military intervention; covert action.
- Explain common reasons for the breakdown of order among nation-states, e.g., conflicts about national interests, ethnicity, and religion; competition for resources and territory; and the absence of effective means to enforce international law.
- Explain the consequences of the breakdown of order among nation-states.
- Explain why and how the breakdown of order among nation-states can affect their own lives.

(Center for Civic Education, 1994)

3. What Do the Civics and Government Standards Mean for Schools?

The standards underscore the importance of formal instruction in civics and government and the need for increased and more systematic attention to civic education in the K–12 curriculum.

> *Inattention to civic education stems in part from the assumption that the knowledge and skills citizens need emerge as by-products of the study of the other disciplines or as an outcome of the process of schooling itself. While it is true that history, economics, literature, and other subjects do enhance students' understanding of government and politics, they cannot replace sustained, systematic attention to civic education. Civics should be seen as a central concern from kindergarten through twelfth grade, whether it is taught as a part of other courses or in separate units or courses.* (Center for Civic Education, 1994)

The standards are future-oriented and expand what has been the traditional content of civics and government classes. They give more emphasis to the politics of state and local government, U.S. foreign policy, the relationship of U.S. politics and government to world affairs, the role of the media in shaping public policy and public opinion, political participation, and preparing students to analyze political issues.

National Geography Standards

1. What Is the Purpose of the National Geography Standards and How Were They Developed?

The National Geography Standards prepare students to meet the demands of an emerging world where an understanding of the many dimensions of global interdependence are essential for responsible citizenship. They represent a consensus on what constitutes a world-class education in geography for all students. The standards are designed to create a generation of geographically informed persons who understand that geography is the study of people, places and environments from a spatial perspective, and who appreciate the interdependent worlds in which they live. The standards-setting effort emphasized that there is an urgent need for a geographically literate society.

'Geographic understanding must be connected to life contexts and set into a process of lifelong learning.

> ◆ *The National Geography Standards prepare students to meet the demands of an emerging world where an understanding of the many dimensions of global interdependence are essential for responsible citizenship.*

The development effort was led by the National Council for Geographic Education, in coordination with the Association of American Geographers, the National Geographic Society, and the American Geographical Society. In building a national consensus on content standards in geography, the standards-setting process: (1) used a committee structure involving all of the major geography organizations; (2) held nine public hearings across the country; and (3) disseminated draft standards for comment to more than 3,000 individuals including geography teachers, state social studies and science coordinators, and such stakeholders as parents and members of business, professional, and civic organizations. Close contact was maintained with the history and science groups, the disciplines with the strongest curriculum ties to geography. In developing the standards, the Geography Education Standards Project used curriculum materials collected from many countries as well as state and local curriculum frameworks from the United States. Particular attention was given to using the framework and exercise specifications prepared for the *Geography Assessment Framework for the 1994 National Assessment of Educational Progress* (NAEP). The standards were completed in 1994 and released in the document *Geography for Life: National Standards*.

2. How Are the Geography Standards Organized?

In developing the standards, three interrelated and inseparable components of geography were addressed separately and then integrated: subject matter, skills, and perspectives. Eighteen content standards provide an overall framework for describing the subject matter of what geographically informed persons should know and understand in six essential areas of study. How the content standards are organized under the six areas is shown in Figure 15. For each of the 18 subject matter standards, the standards document includes specific examples of what students should know and be able to do at the end of the 4th, 8th, and 12th grade levels. The examples integrate subject matter with the application of geographic skills and perspectives. This approach is shown in Exhibit 6 in the Appendix. The five geographic skill areas that are applied to the subject matter are: (1) asking geographic questions; (2) acquiring geographic information; (3) organizing geographic information;

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(4) analyzing geographic information; and (5) answering geographic questions. For these five skill areas, the standards document describes the specific skills students need to develop. Also, knowledge and skills are considered from two geographic perspectives, spatial and ecological, that provide frames of reference for looking at the world.

3. What Do the Geography Standards Mean for Schools?

The geography standards reflect an expanded and more creative approach to the study of geography that is more attuned to the nature and demands of the emerging world society. Traditionally passive approaches to memorizing content have been replaced by activities that involve students in "hands on" activities, critical thinking, and group learning, and the use of media and technology as part of the learning process is emphasized. There is a blending of physical and human systems as students study places, peoples, environments and the relationships among them, and classrooms learnings are connected to real world situations. Students learn vital questioning skills through querying from a geographical perspective, and "develop an awareness that people and environment are interconnected in a massive global system" (Dulli and Goodman, 1994).

FIGURE 15

CONTENT STANDARDS FOR GEOGRAPHY

The World in Spatial Terms

Geography studies the relationships between people, places, and environments by mapping information about them into a spatial context. *The geographically informed person knows and understands:*

1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective
2. How to use mental maps to organize information about people, places, and environments in a spatial context
3. How to analyze the spatial organization of people, places, and environments on Earth's surface

Places and Regions

The identities and lives of individuals and peoples are rooted in particular places and in those human constructs called regions. *The geographically informed person knows and understands:*

4. The physical and human characteristics of places
5. That people create regions to interpret Earth's complexity
6. How culture and experience influence people's perceptions of places and regions

Physical Systems

Physical processes shape Earth's surface and interact with plant and animal life to create, sustain, and modify ecosystems. *The geographically informed person knows and understands:*

7. The physical processes that shape the patterns of Earth's surface
8. The characteristics and spatial distribution of ecosystems on Earth's surface

Human Systems

People are central to geography in that human activities help shape Earth's surface, human settlements and structures are part of the Earth's surface, and humans compete for control of Earth's surface. *The geographically informed person knows and understands:*

9. The characteristics, distribution, and migration of human populations on Earth's surface
10. The characteristics, distribution, and complexity of Earth's cultural mosaics
11. The patterns and networks of economic interdependence on Earth's surface
12. The processes, patterns, and functions of human settlement
13. How the forces of cooperation and conflict among people influence the division and control of Earth's surface

Environment and Society

The physical environment is modified by human activities, largely as a consequence of the ways in which human societies value and use Earth's natural resources, and human activities are also influenced by Earth's physical features and processes.

The geographically informed person knows and understands:

14. How human actions modify the physical environment
15. How physical systems affect human systems
16. The changes that occur in the meaning, use, distribution, and importance of resources

The Uses of Geography

Knowledge of geography enables people to develop an understanding of the relationships between people, places, and environments over time—that is, of Earth as it was, is, and might be.

The geographically informed person knows and understands:

17. How to apply geography to interpret the past
18. How to apply geography to interpret the present and plan for the future

(National Geographic Society, 1994)

Standards-setting efforts in the subject areas of English/Language Arts, Economics, Foreign Languages, and Science are in various stages of development. The progress of these projects is described below.

1. WHAT IS THE STATUS OF STANDARDS FOR ENGLISH AND LANGUAGE ARTS?

The development of voluntary national standards for English and the language arts came to a halt when the U.S. Department of Education discontinued funding to the Center for Reading at the University of Illinois, which was coordinating the standards-setting project with the National Council of Teachers of English (NCTE) and the International Reading Association (IRA). Lack of progress and an emphasis on process statements rather than specific definitions of what students should know and be able to do in the domains of language, literacy, and literature were cited as reasons for the loss of federal funding. The NCTE and IRA have committed their own funds to continue the development effort and are collaborating to complete the standards.

2. WHAT IS THE STATUS OF THE ECONOMICS STANDARDS?

The National Council on Economic Education began the process of developing standards for economic education in 1994. The effort involves a national task force of economists, teachers, employers, representatives of national groups such as the National Council for Social Studies, textbook publishers, and representatives from organized labor. The standards are scheduled to be completed in 1995.

3. WHAT IS THE STATUS OF NATIONAL STANDARDS IN FOREIGN LANGUAGE EDUCATION?

The standards effort is being led by the American Council of the Teaching of Foreign Languages in coordination with the American Association of Teachers of French, the American Association of Teachers of German, and the American Association of Teachers of Spanish and Portuguese. An 11-

member task force was charged with developing the standards through a process that involved review and comment by representatives from national teachers' organizations, teacher educators, teachers, and scholars. The standards-setting process for foreign languages envisions a future in which *all* students will develop and maintain proficiency in more than one language, and reflects an imperative to educate American students to be linguistically and culturally equipped to interact successfully at home and abroad as citizens in the global community. Draft content standards were developed in 1994 and are scheduled for completion in 1995.

The standards are organized around the following five goal areas for the K–4, 5–8, and 9–12 grade levels: *Communicate in Languages Other Than English, Gain Knowledge of Other Cultures, Access New Information and Knowledge, Develop Insight Into Own Language and Culture,* and *Participate in Multilingual Communities and Global Society*. Within each of the grade level clusters, the draft standards provide: an overview of learner characteristics; a discussion of the goal for the particular grade level; the standard statement; sample benchmark tasks; elements the students need to know to meet the standards; and sample learning scenarios.

The foreign language standards increase the emphasis given to interactive learning, communication, and cultural understanding in foreign language programs. The standards document points out that students do not gain this competence by memorizing vocabulary items in isolation and by producing limited simple sentences. Schools are urged to provide students with opportunities to use the target language in meaningful situations in a wide range of activities. The draft standards also stress the importance of an extended sequence of study beginning in the elementary grades and continuing through high school. Foreign languages are thus placed into the primary curriculum.

4. What Is the Status of the National Science Education Standards?

The National Committee on Science Education Standards and Assessment, operating under the aegis of the National Research Council, is leading the effort to develop science standards for science content, teaching, and assessment. Three groups with a majority of teachers working with scientists, educational psychologists, and other professionals are developing the standards. A review process will involve hundreds of educators and scientists. Draft standards were released in 1994 and are scheduled for completion in 1995.

National science education standards are being developed in the following five areas.

- **Science System Standards** specify the support systems and resources needed to provide all students the opportunity to learn science.
- **Science Program Standards** specify the nature, design, and consistency of the school and district science program that affect students learning science.
- **Science Teaching and Professional Development Standards** specify the criteria for the exemplary practice of science teaching.
- **Science Assessment Standards** specific criteria for assessing and analyzing students' attainments in science and the opportunities to learn which school science programs afford students.
- **Science Content Standards** specify expectations for the development of: proficiency in conducting inquiry including the use of scientific modes of reasoning, and the ability to apply and to communicate scientific knowledge; scientific understanding of concepts, laws, theories, and models; understanding of the interdependent relationship of science and technology; and understanding of the influence of science of societal issues, both contemporary and historical.

Eight categories of content standards have been proposed: Science as Inquiry; Physical Science; Life Science; Earth and Space Science; Science and Technology; Science in Personal and Social Perspectives; History of Science; and Unifying Concepts and Processes. The first seven categories have standards for grades K–4, 4–8, and 9–12. The final category crosses all grade levels.

THE SCANS FRAMEWORK

1. WHAT IS THE PURPOSE OF THE SCANS FRAMEWORK AND HOW WAS IT DEVELOPED?

The Secretary of Labor's Commission on Achieving Necessary Skills (SCANS) was created in 1990 to define the skills required for effective job performance in a technological society. The Commission proposed *a framework of core workplace competencies and foundation skills* that has come to be known as the SCANS Framework, and produced a series of reports that describe how schools can prepare young people for productive work in the 21st century. Underlying the SCANS

Framework is the belief that a high-performance workplace requires high-performance schooling, and that achievement throughout American schools must be raised so that all students attain the skills and knowledge needed for productive participation in the workplace of tomorrow.

> ◆ *"All American high school students must develop a new set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life . . ." (SCANS, 1991)*

The first SCANS report, *What Work Requires of Schools: A SCANS Report for America 2000*, began from the premise that while schools do more than prepare young people for work, education must be linked to the real world. Emphasizing that the demands on business and workers are very different since the "globalization of commerce and industry and the explosive growth of technology on the job," the report highlighted the essential role of schools in moving the nation to a high-performance future. The report concluded that "all American high school students must develop a new set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life," and that the nation's schools must be transformed into high-performance organizations "relentlessly committed to producing skilled graduates as the norm, not the exception" (SCANS, 1991).

> *This will require transforming the practices of schooling and having educators and the public agree on new objectives for learning and new ways of teaching and studying. It will also require developing widely understood standards of performance as well as new assessments to measure their attainment.* (SCANS, 1991)

The second SCANS report, *Skills and Tasks for Jobs: A SCANS Report for America 2000*, includes hundreds of detailed, job-related examples of how the competencies and foundation skills are required and used in various job tasks. A third report, *Learning a Living: A Blueprint for High Performance*, provides specific examples and recommendations for integrating the SCANS competencies into the curriculum, and compares what schools currently teach with what the workplace requires. A fourth publication, *Teaching The SCANS Competencies* includes six articles which provide teachers with practical suggestions for applying the SCANS framework in the classroom.

The National Council on Education Standards and Testing (NCEST) endorsed the workplace competencies defined by SCANS, recommending that they be integrated into national standards and

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◆ *The nation's schools must be transformed into high-performance organizations "relentlessly committed to producing skilled graduates as the norm, not the exception." (SCANS, 1991)*

assessments of core academic subjects. The SCANS framework has had a strong influence on curriculum standards that are being developed at national and state levels.

2. What Does the SCANS Framework Include?

The SCANS framework of "Workplace Know-How" identifies five competencies and a three-part foundation of skills and personal qualities that "lie at the heart of job performance today," and represent essential preparation for all students. The SCANS Framework is shown in Figure 16. Definitions for the competencies and foundation skills are found in Exhibits 7 and 8 in the Appendix. According to the SCANS Reports, a high-performance workplace requires workers "who have a solid foundation in the basic literacy and computational skills, in the thinking skills necessary to put knowledge to work, and in the personal qualities that make workers dedicated and trustworthy." High-performance workplaces also require competencies that include the ability "to manage resources, to work amicably and productively with others, to acquire and use information, to master complex systems, and to work with a variety of technologies." The Commission emphasized that seldom do any of these components stand alone in job performance; rather, they are highly integrated, and most tasks require workers to draw on several of them simultaneously.

3. What Does the SCANS Framework Mean for Schools?

The Commission has concluded that the *combination* of foundation skills and workplace competencies represented in the SCANS Framework is not taught in many schools or required for most diplomas. Recommending that the nation's school systems make the SCANS foundation skills and workplace competencies explicit objectives of instruction at all levels, the Commission urges that assessment systems be restructured to ensure that students develop the proficiencies necessary for successful employment.

> *In the absence of a system for assessing and certifying the SCANS know-how, it will not be learned. If employers and colleges pay attention to the SCANS foundation skills and workplace competencies, students will work to acquire them. If teachers have to certify that the workplace competencies are acquired, they will make the effort to teach them. If*

parents and community groups understand the standards that graduates are expected to attain, they will demand that their children reach these levels. (SCANS, 1992b)

FIGURE 16

SCANS FRAMEWORK OF WORKPLACE KNOW-HOW

WORKPLACE COMPETENCIES—Effective workers can productively use:

- **Resources**—They know how to allocate time, money, materials, space, and staff.
- **Interpersonal skills**—They can work on teams, teach others, serve customers, lead, negotiate, and work with people from culturally diverse backgrounds.
- **Information**—They can acquire and evaluate data, organize and maintain files, interpret and communicate, and use computers to process information.
- **Systems**—They understand social, organizational, and technological systems; they can monitor and correct performance; and they can design or improve systems.
- **Technology**—They can select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment.

FOUNDATION SKILLS—Competent workers in the high-performance workplace need:

- **Basic Skills**—reading, writing, arithmetic and mathematics, speaking and listening.
- **Thinking Skills**—the ability to learn, to reason, to think creatively, to make decisions, and to solve problems.
- **Personal Qualities**—individual responsibility, self-esteem and self-management, sociability, and integrity.

(SCANS, 1992b)

The Commission argued that elementary and secondary schools must meet drastically different goals and bring all students to a level that, in the past, only a small minority actually reached.

Our primary message to schools is this: Look beyond the schoolhouse to the roles students will play when they leave to become workers, parents, and citizens.

Our message to teachers is this: Look beyond your discipline and your classroom to the other courses your students take, to your community, and to the lives of your students outside school. Help your students connect what they learn in class to the world outside.
(SCANS, 1992b)

The SCANS reports recommend that the core competencies and foundation skills be taught from kindergarten through grade 12 and beyond, that they be integrated into core academic subjects and vocational education, and that they be applied across the board in other subject areas such as health and physical education, music, and the other arts. Exhibit 9 in the Appendix provides examples of assignments that integrate the SCANS competencies into the core curriculum areas.

◆ *Our primary message to schools is this: Look beyond the schoolhouse to the roles students will play when they leave to become workers, parents, and citizens.*

Schools, districts, and states that are implementing the SCANS framework have quickly discovered that improving the match between what work requires and what students are taught means changing how instruction takes place and how students learn. Figure 17 contrasts the conventional classroom with the SCANS classroom followed by perspectives on teaching and learning reflect approaches that are consistent with the SCANS framework.

> Teaching should be offered "in context," that is, students should learn content while solving realistic problems. "Learning in order to know" should not be separated from "learning in order to do."
>
> Teaching in context requires more complex integration with real-world experience. It also often requires cooperative learning opportunities. It always demands that students be active learners who are promoting the growth of their own knowledge as they undertake realistic tasks.
>
> Teaching in context requires that the curriculum be integrated across subject areas in activities that require students to read, write, compute, apply principles, and reason about specific problems.
>
> Teaching the workplace competencies and foundation skills requires appropriate instructional materials and new technology. (SCANS, 1992a)

◆ *Improving the match between what work requires and what students are taught means changing how instruction takes place and how students learn.*

The Commission recognized that "of all the resources required for re-inventing schools, none are more important than those devoted to teacher training and staff development." Teachers need time and support to develop the skills required to teach content through realistic problem solving, to develop active collaborative learning environments, and to learn instructional management skills related to the use of new instructional technologies.

FIGURE 17

THE CONVENTIONAL CLASSROOM COMPARED WITH THE SCANS CLASSROOM	
FROM THE CONVENTIONAL CLASSROOM	**TO THE SCANS CLASSROOM**
Teacher knows answer.	More than one solution may be viable and teacher may not have it in advance.
Students routinely work alone.	Students routinely work with teachers, peers, and community members.
Teacher plans all activities.	Students and teachers plan and negotiate activities.
Teacher makes all assessments. Information is organized, evaluated, interpreted and communicated to students by teacher.	Students routinely assess themselves. Information is acquired, evaluated, organized, interpreted, and communicated by students to appropriate audiences.
Organizing system of the classroom is simple: one teacher teaches 30 students.	Organizing systems are complex: teacher and students both reach out beyond school for additional information.
Reading, writing, and math are treated as separate disciplines; listening and speaking often are missing from curriculum.	Disciplines needed for problem solving are integrated; listening and speaking are fundamental parts of learning.
Thinking is usually theoretical and "academic."	Thinking involves problem solving, reasoning, and decision making.
Students are expected to conform to teacher's behavioral expectations; integrity and honesty are monitored by teacher; students' self-esteem is often poor.	Students are expected to be responsible, sociable, self-managing, and resourceful; integrity and honesty are monitored within the social context of the classroom; students' self-esteem is high because they are in charge of their own learning.

(SCANS, 1992b)

4. HOW WERE EDUCATIONAL EQUITY AND STUDENT DIVERSITY ADDRESSED IN THE SCANS REPORTS?

The SCANS Reports stressed the goal of increased educational achievement for all segments of the population and linked educational equity to: (1) the establishment of clear standards for what *all* students need to know and be able to do; and (2) organizing education in a way that ensures all students get the services they need to meet the standards. Standards were described as the most powerful means of ending unequal opportunities for children to learn what is necessary to participate

effectively in the nation's economy. As stated by one Commissioner, ". . . only with public, clearly understandable standards for all students can we end the double standard that is now depriving so many children of the chance to study a challenging curriculum and to have access to good jobs or further education when they finish school."

The Commission emphasized that education and training efforts must address diversity in student populations—diversity that stems from differences in family income, limited English-speaking proficiency, and differences in learning styles.

> *Variation and diversity are not the enemies of high-quality education. The enemy is rigid insistence on a factory model of schooling, a prescription for failure that refuses to accommodate diversity or allow those students with special strengths to function productively.* (SCANS, 1992b)

The SCANS Reports highlighted the importance of using assessments that play to students' strengths, not their weaknesses, stressing that "tests should not needlessly penalize students who need more time, are unconventional thinkers, or are bored by multiple choice tests" (SCANS, 1992b).

The National Center on Educational Outcomes

1. What Is the Purpose of the Framework Developed By the National Center on Educational Outcomes?

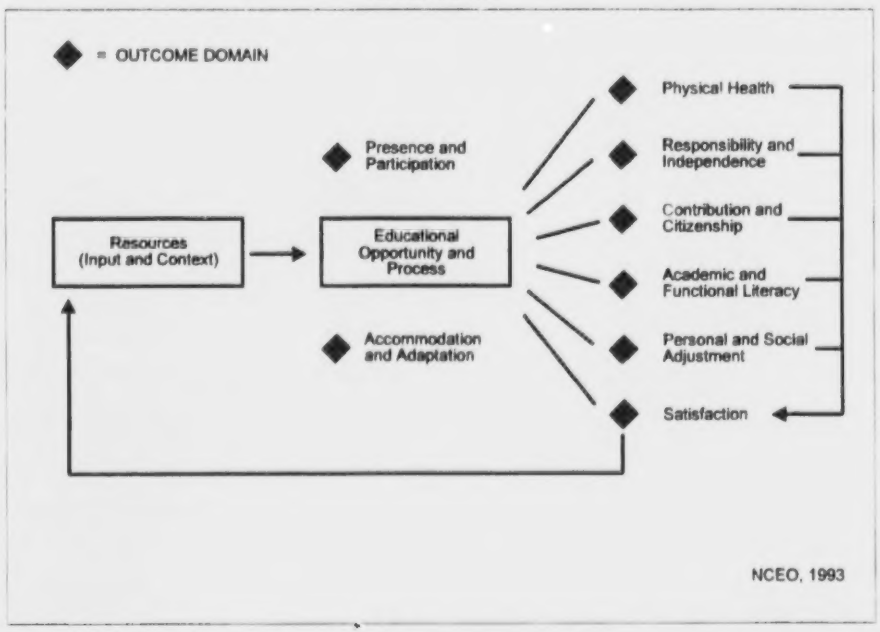
The National Center on Educational Outcomes (NCEO) at the University of Minnesota was funded by the Office of Special Education Programs, U.S. Department of Education, to develop a framework and set of outcome indicators for students with disabilities. NCEO's Conceptual Model of Educational Outcomes was developed in collaboration with the National Association of State Directors of Special Education (NASDSE) through a consensus process involving hundreds of educators, policy makers, administrators, and parents. This model has influenced state reform efforts which have focused on improving the educational outcomes achieved by students receiving special education services.

The framework was developed to identify key indicators of important educational outcomes and to facilitate their use for students with disabilities. It is based on the belief that the responsible use of such outcome indicators will enable students with disabilities to achieve better results from their educational experiences. However, the model is viewed by NCEO as an inclusive framework that is applicable to *all* students, not only students with disabilities. NCEO views its model as providing a framework and examples that can be used by states, districts, and schools. NCEO is also using a consensus-building process to identify outcomes and indicators for developmental levels which will span from three years of age to post-school age.

2. How Is the Framework Organized?

The model includes eight outcome domains as shown in Figure 18. Two of the domains, *Presence and Participation* and *Accommodation and Adaptation*, are placed within the context of the educational process itself. NCEO thus proposes that an examination of outcomes for all students, including students with disabilities, must take into account their level of participation in school and their adaptation and coping skills. The six other domains included in the model are *Physical Health, Responsibility and Independence, Contribution and Citizenship, Academic and Functional Literacy, Personal and Social Adjustment,* and *Satisfaction.*

Figure 18



For each of the domains, the model identifies outcomes, indicators of outcomes, and data sources for the various indicators. Outcome indicators are the actual data that schools can use to demonstrate the extent to which various outcomes have been achieved. The NCEO Framework is not intended to provide standards for what children should know and be able to do. However, the domain of Academic and Functional Literacy includes five overall outcomes which reflect the nationwide emphasis on higher order thinking skills and use of technology. The five outcomes for which students must *demonstrate competence* are: (1) communication; (2) problem-solving strategies and critical-thinking skills; (3) mathematics, reading, and writing skills; (4) other academic and nonacademic skills; and (5) using technology. Figure 19 depicts the outcomes and outcome indicators defined in the NCEO framework for these areas.

3. What Does the NCEO Framework Mean for Schools?

NCEO views its model as providing a framework that can be used by states, districts, and schools in defining and monitoring educational outcomes for students, particularly students with disabilities. Schools seeking to monitor and demonstrate student progress against the indicators included in the framework will have to deal with the measurement and accountability issues that have been raised by the standards movement. The measurement issue is tied to the assessment methods used by schools through which students demonstrate competence. The use of norm-referenced tests and the narrow types of textbook-driven "end-of-unit" or "end-of-semester" assessment methods traditionally used by schools do not adequately assess student competencies, nor do they measure higher order communication, reasoning, and problem-solving skills.

Monitoring and communicating to parents and other stakeholders the percent of students who actually *demonstrate* literacy in the five areas identified in the NCEO model will require that statewide testing programs and schools become more proficient in the use of assessment methods that reveal students' real performance capacities. It will also require that students with disabilities be included in these assessments. Current reform efforts are already showing this shift, including the New Hampshire Educational Assessment Program. Schools are starting to shift toward teaching and learning practices that integrate assessment with instruction, focus on what students understand and can do, and draw upon the use of portfolios, performance demonstrations, and other observational measures to assess student proficiency.

The accountability issue is tied to the extent to which school information systems have the capacity to disaggregate data so that schools can monitor and demonstrate the progress of specific groups of students. Tracking student performance against the broad competencies defined in the NCEO framework or against educational standards defined in curriculum frameworks requires that schools develop the capacity to determine which students are achieving desired competencies over time. For students with disabilities, it means that teachers and administrators will be able to determine whether students in inclusive classroom settings develop essential competencies and whether the special services provided to them contribute to their success.

FIGURE 19

EXCERPT FROM NATIONAL CENTER ON EDUCATIONAL OUTCOMES FRAMEWORK: ACADEMIC AND FUNCTIONAL LITERACY

EXAMPLES OF OUTCOMES	OUTCOME INDICATORS
Demonstrates competence in communication	Percent of students who use and comprehend language that effectively accomplishes the purpose of the communication
Demonstrates competence in problem-solving strategies and critical thinking skills	Percent of students who demonstrate problem-solving and critical thinking skills
Demonstrates competence in math, reading, and writing skills	Percent of students who demonstrate competence in math necessary to function in their current home, school, work, and community environments Percent of students who demonstrate competence in math necessary to function in their next environment Percent of students who demonstrate competence in reading necessary to function in their current home, school, work, and community environments Percent of students who demonstrate competence in reading necessary to function in their next environment Percent of students who demonstrate competence in writing necessary to function in their current home, school, work, and community environments Percent of students who demonstrate competence in writing necessary to function in their next environment
Demonstrates competence in other academic and non-academic skills	Percent of students who demonstrate competence in other academic and non-academic skills necessary to function in their current home, school, work, and community environments Percent of students who demonstrate competence in other academic and non-academic skills necessary to function in their next environment
Demonstrates competence in using technology	Percent of students who currently apply technology to enhance functioning in home, school, work, and community environments Percent of students who demonstrate competence in using technology to function in their next environment

(Ysseldyke et al., 1993)

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APPENDIX

EXHIBITS

1. Summary of Changes in Content and Emphasis in K–4 Mathematics A–2
2. Summary of Changes in Content and Emphasis in 5–8 Mathematics A–3
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EXHIBIT 1

SUMMARY OF CHANGES IN CONTENT AND EMPHASIS IN K–4 MATHEMATICS

	INCREASED ATTENTION	DECREASED ATTENTION
Number:	• Number sense • Place-value concepts • Meaning of fractions and decimals • Estimation of quantities	• Early attention to reading, writing, and ordering numbers symbolically
Operations and Computation:	• Meaning of operations • Operation sense • Mental computation • Estimation and the reasonableness of answers • Selection of an appropriate computational method • Use of calculators for complex computation • Thinking strategies for basic facts	• Complex paper-and-pencil computations • Isolated treatment of paper-and-pencil computations • Addition and subtraction without renaming • Isolated treatment of division facts • Long division • Long division without remainders • Paper-and-pencil fraction computation • Use of rounding to estimate
Geometry and Measurement:	• Properties of geometric figures • Geometric relationships • Spatial sense • Process of measuring • Concepts related to units of measurement • Actual measuring • Estimation of measurements • Use of measurement and geometry ideas throughout the curriculum	• Primary focus on naming geometric figures • Memorization of equivalencies between units of measurement
Probability and Statistics	• Collection and organization of data • Exploration of chance	
Patterns and Relationships	• Pattern recognition and description • Use of variables to express relationships	
Problem Solving:	• Word problems with a variety of structures • Use of everyday problems • Applications • Study of patterns and relationships • Problem-solving strategies	• Use of clue words to determine which operation to use

(National Council of Teachers of Mathematics, 1989)

EXHIBIT 2

SUMMARY OF CHANGES IN CONTENT AND EMPHASIS IN 5–8 MATHEMATICS

	INCREASED ATTENTION	DECREASED ATTENTION
Problem Solving	• Pursuing open-ended problems and extended problem-solving projects • Investigating and formulating questions from problem situations • Representing situations verbally, numerically, graphically, geometrically, or symbolically	• Practicing routine, one-step problems • Practicing problems categorized by types (e. g., coin problems, age problems)
Communication	• Discussing, writing, reading, and listening to mathematical ideas	• Doing fill-in-the-blank worksheets • Answering questions that require only yes, no, or a number as responses
Reasoning	• Reasoning in spatial contexts • Reasoning with proportions • Reasoning from graphs • Reasoning inductively and deductively	• Relying on outside authority (teacher or an answer key)
Connections	• Connecting mathematics to other subjects and to the world outside the classroom • Connecting topics within mathematics • Applying mathematics	• Learning isolated topics • Developing skills out of context
Number/ Operations/ Computation	• Developing number sense • Developing operation sense • Creating algorithms and procedures • Using estimation both in solving problems and in checking the reasonableness of results • Exploring relationships among representations of, and operations on, whole numbers, fractions, decimals, integers, and rational numbers • Developing an understanding of ratio, proportion, and percent	• Memorizing rules and algorithms • Practicing tedious paper-and-pencil computations • Finding exact forms of answers • Memorizing procedures, such as cross-multiplication, without understanding • Practicing rounding numbers out of context
Patterns and Functions	• Identifying and using functional relationships • Developing and using tables, graphs, and rules to describe situations • Interpreting among different mathematical representations	• Topics seldom in the current curriculum
Algebra	• Developing an understanding of variables, expressions, and equations • Using a variety of methods to solve linear equations and informally investigate inequalities and nonlinear equations	• Manipulating symbols • Memorizing procedures and drilling on equation solving
Statistics	• Using statistical methods to describe, analyze, evaluate, and make decisions	• Memorizing formulas

{Exhibit 2, continued}

Probability	• Creating experimental and theoretical models of situations involving probabilities	• Memorizing formulas
Geometry	• Developing an understanding of geometric objects and relationships • Using geometry in solving problems	• Memorizing geometric vocabulary • Memorizing facts and relationships
Measurement	• Estimating and using measurement to solve problems	• Memorizing and manipulating formulas • Converting within and between measurement systems

(National Council of Teachers of Mathematics, 1989)

EXHIBIT 3

SUMMARY OF CHANGES IN CONTENT AND EMPHASIS IN 9–12 MATHEMATICS

	INCREASED ATTENTION	DECREASED ATTENTION
Algebra	• The use of real-world problems to motivate and apply theory • The use of computer utilities to develop conceptual understanding • Computer-based methods such as successive approximations and graphing utilities for solving equations and inequalities • The structure of number systems • Matrices and their applications	• Word problems by type, such as coin, digit, and work • The simplification of radical expressions • The use of factoring to solve equations and to simplify rational expressions • Operations with rational expressions • Paper-and-pencil graphing of equations by point plotting • Logarithmic calculations using tables and interpolation • The solution of systems of equations using determinants • Conic sections
Geometry	• Integration across topics at all grade levels • Coordinate and transformation approaches • The development of short sequences of theorems • Deductive arguments expressed orally and in sentence or paragraph form • Computer-based explorations of 2-D and 3-D figures • Three-dimensional geometry • Realistic applications and modeling	• Euclidean geometry as a complete axiomatic system • Proofs of incidence and betweenness theorems • Geometry from a synthetic viewpoint • Two-column proofs • Inscribed and circumscribed polygons • Theorems for circles involving segment ratios • Analytic geometry as a separate course
Trigonometry	• The use of appropriate scientific calculators • Realistic applications and modeling • Connections among the right triangle ratios, trigonometric functions, and circular functions • The use of graphing utilities for solving equations and inequalities	• The verification of complex identities • Numerical applications of sum, difference, double-angle, and half-angle identities • Calculations using tables and interpolation • Paper-and-pencil solutions of trigonometric equations
Functions	• Integration across topics at all grade levels • The connections among a problem situation, its model as a function in symbolic form, and the graph of that function • Function equations expressed in standardized form as checks on the reasonableness of graphs produced by graphing utilities • Functions that are constructed as models of real-world problems	• Paper-and-pencil evaluation • The graphing of functions by hand using tables of values • Formulas given as models of real-world problems • The expression of function equations in standardized form in order to graph them • Treatment as a separate course

EXHIBIT 4

ACHIEVEMENT STANDARDS FOR SAMPLE MUSIC STANDARD			
1. Content Standard: *Singing, alone and with others, a varied repertoire of music*			
GRADES K–4	**Grades 5–8**	**Grades 9–12, Proficient**	**Grades 9–12, Advanced**
Achievement Standard: Students	**Achievement Standard:** Students	**Achievement Standard, Proficient:** Students	**Achievement Standard, Advanced:** Students
sing independently, on pitch and in rhythm, with appropriate timbre, diction, and posture, and maintain a steady tempo	sing accurately and with good breath control throughout their singing ranges, alone and in small and large ensembles	⟶	⟶
sing expressively, with appropriate dynamics, phrasing, and interpretation			
———	sing with expression and technical accuracy a repertoire of vocal literature with a level of difficulty of 2, on a scale of 1 to 6, including some songs performed from memory	sing with expression and technical accuracy a repertoire of vocal literature with a level of difficulty of 4, on a scale of 1 to 6, including some songs performed from memory	sing with expression and technical accuracy a large and varied repertoire of vocal literature with a level of difficulty of 5, on a scale of 1 to 6, including some songs performed from memory
sing from memory a varied repertoire of songs representing genres and styles from diverse cultures	sing music representing diverse genres and cultures, with expression appropriate for the work being performed		
sing ostinatos, partner songs, and rounds	sing music written in two and three parts	sing music written in four parts, with and without accompaniment	sing music written in more than four parts
sing in groups, blending vocal timbres, matching dynamic levels, and responding to the cues of a conductor	⟶	demonstrate well-developed ensemble skills	sing in small ensembles with one student on a part
	[choral ensemble]: sing with expression and technical accuracy a varied repertoire of vocal literature with a level of difficulty of 3, on a scale of 1 to 6, including some songs performed from memory		(Consortium of National Arts Education Associations, 1994.)
——— ⟶	*The standard appearing at a higher level may not be developmentally appropriate at this level, although learning experiences leading toward the skills associated with the standard are assumed to be taking place.* *Students at this grade level are expected to achieve the standard, demonstrating higher levels of skill, dealing with more complex examples, and responding to works of art in increasingly sophisticated ways.*		

EXHIBIT 5

CRITERIA FOR HISTORY STANDARDS

1. Standards should be intellectually demanding, reflect the best historical scholarship, and promote active questioning and learning rather than passive absorption of facts, dates, and names.

2. Such standards should be equally expected of *all* students and all students should be provided equal access to the curricular opportunities necessary to achieving those standards.

3. Standards should reflect the ability of children from the earliest elementary school years to learn the meanings of history and the methods of historians.

4. Standards should be founded in chronology, an organizing approach that fosters appreciation of pattern and causation in history.

5. Standards should strike a balance between emphasizing broad themes in United States and world history and probing specific historical events, ideas, movements, persons, and documents.

6. All historical study involves selection and ordering of information in light of general ideas and values. Standards for history should reflect the principles of sound historical reasoning—careful evaluation of evidence, construction of causal relationships, balanced interpretation, and comparative analysis. The ability to detect and evaluate distortion and propaganda by omission, suppression, or invention of facts is essential.

7. Standards should include awareness of, appreciation for, and the ability to utilize a variety of sources of evidence from which historical knowledge is achieved, including written documents, oral tradition, popular culture, literature, artifacts, art and music, historical sites, photographs and films.

8. Standards for United States history should reflect both the nation's diversity, exemplified by race, ethnicity, social and economic status, gender, region, politics and religion, and the nation's commonalities. The contributions and struggles of specific groups and individuals should be included.

9. Standards in United States history should contribute to citizenship education through developing understanding of our common civic identity and shared civic values within the polity, through analyzing major policy issues in the nation's history and through developing mutual respect among its many peoples.

10. History Standards should emphasize the nature of civil society and its relationship to government and citizenship. Standards in United States history should address the historical origins of the nation's democratic political system and the continuing development of its ideas and institutions, its controversies, and the struggle to narrow the gap between its ideals and practices. Standards in world history should include different patterns of political institutions ranging from varieties of democracy to varieties of authoritarianism, and ideas and aspirations developed by civilizations in all parts of the world.

11. Standards in United States and world history should be separately developed but interrelated in content and similar in format. Standards in United States history should reflect the global context in which it unfolded, and world history should treat United States history as one of its integral parts.

12. Standards should include appropriate coverage of recent events in United States and world history, including social and political developments and international relations of the post-World War II era.

13. Standards in U.S. history and world history should utilize regional and local history by exploring specific events and movements through case studies and historical research. Local and regional history should enhance the broader patterns of U.S. and world history.

{Exhibit 5, continued}

14. Standards in U.S. and world history should integrate fundamental facets of human culture such as religion, science, and technology, politics and government, economics, interactions with the environment, intellectual and social life, literature, and the arts.

15. Standards in world history should treat the history and values of diverse civilizations, including those of the West, and should especially address the interactions among them.

(National Center for History in the Schools, 1994)

EXHIBIT 6
FORMAT OF THE GEOGRAPHY STANDARDS

Reading the Text of These Standards

Each standard is identified by a number—in this case National Geography Standard 4—and grade level—in this case grades K–4.

Each standard is grouped with an *essential element.*

Each *standard title* is a summary of what the student needs to know and understand about a specific set of ideas and approaches.

Each standard explains exactly what the student should know and understand after completing a particular grade level. In this case, at grade 4, there are three knowledge statements.

Each standard states what the student should be able to do on the basis of this knowledge. In this case, at grade 4, there are four activities, each of which is exemplified by three learning opportunities for students and teachers.

GEOGRAPHY STANDARD 4 GRADES K–4

Places and Regions

The Physical and Human Characteristics of Places

By the end of the fourth grade, the student knows and understands:

1. The physical characteristics of places (e.g., landforms, bodies of water, soil, vegetation, and weather and climate)

2. The human characteristics of places (e.g., population distributions, settlement patterns, languages, ethnicity, nationality, and religious beliefs)

3. How physical and human processes together shape places

Therefore, the student is able to:

A. Describe and compare the physical characteristics of places at a variety of scales, local and global, as exemplified by being able to

Observe and describe the physical characteristics of the local community in words and sketches, using a data-retrieval chart organized by physical features (e.g., landforms, bodies of water, soils, vegetation)

Use a variety of visual materials and data sources (e.g., photographs, satellite-produced images, pictures, tables, charts) to describe the physical characteristics of a region, noting items that have similar distributions (e.g., trees in river valleys)

Use cardboard, wood, clay, or other materials to make a model of a region that shows its physical characteristics (e.g., landforms, bodies of water, vegetation)

B. Describe and compare the human characteristics of places at a variety of scales, local to global, as exemplified by being able to

Observe and describe the human characteristics of the local community in words and sketches, using a data-retrieval chart organized by human features (e.g., type of economic activity, type of housing, languages spoken, ethnicity, religion)

Use a variety of visual materials, data sources, and narratives (e.g., photographs, pictures, tables, charts, newspaper stories) to describe the human characteristics of a region and to answer such questions as: Where do people live? What kinds of jobs do they have? How do they spend their leisure time?

Use cardboard, wood, clay, or other materials to make a model of a community that shows its human characteristics (e.g., land-use patterns, areas of settlement, locations of community services)

C. Describe and compare different places at a variety of scales, local to global, as exemplified by being able to

Observe and describe the physical and human characteristics of the local community and compare them to the characteristics of surrounding communities or of communities in other regions of the country

Use a variety of graphic materials and data sources (e.g., photographs, satellite-produced images, tables, charts) to describe the physical and human characteristics of a region, noting items that have similar distributions (e.g., communities are located on major highways)

Use cardboard, wood, clay, or other materials to make a model of a community that shows its physical and human characteristics (e.g., landforms, bodies of water, vegetation, land-use patterns, areas of settlement)

D. Describe and explain the physical and human processes that shape the characteristics of places, as exemplified by being able to

Use maps and other graphic materials to describe the effects of physical and human processes in shaping the landscape (e.g., the effects of erosion and deposition in creating landforms, the effects of agriculture in changing land use and vegetation, the effects of settlement on the building of roads)

Draw maps to show the distribution of population in a region with respect to landforms, climate, vegetation, resources, historic events, or other physical and human characteristics to suggest factors that affect settlement patterns

Keep a daily weather log of wind direction, temperature, precipitation, and general conditions over time to explain some of the factors that affect weather in the local community

(National Geographic Society, 1994)

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EXHIBIT 7

DEFINITIONS OF SCANS WORKPLACE COMPETENCIES	
RESOURCES	
Manages Time:	Selects relevant, goal-related activities, ranks them in order of importance, allocates time to activities, and understands, prepares, and follows schedules.
Manages Money:	Uses or prepares budgets, including making cost and revenue forecasts; keeps detailed records to track budget performance; and makes appropriate adjustments.
Manages Material and Facility Resources:	Acquires, stores, and distributes materials, supplies, parts, equipment, space, or final products in order to make the best use of them.
Manages Human Resources:	Assesses knowledge and skills, distributes work accordingly, evaluates performance, and provides feedback.
INTERPERSONAL	
Participates as a Member of a Team:	Works cooperatively with others and contributes to group efforts with ideas, suggestions, and effort.
Teaches Others:	Helps others learn needed knowledge and skills.
Serves Clients/Customers:	Works and communicates with clients and customers to satisfy their expectations.
Exercises Leadership:	Communicates thoughts, feelings, and ideas to justify a position, encourage, persuade, convince, or otherwise motivate an individual or groups, including responsibly challenging existing procedures, policies, or authority.
Negotiates to Arrive at a Decision:	Works towards an agreement that may involve exchanging specific resources or resolving divergent interests.
Works with Cultural Diversity:	Works well with men and women and with people from a variety of ethnic, social, or educational backgrounds.

{Exhibit 7, continued}

INFORMATION	
Acquires and Evaluates Information:	Identifies a need for data, obtains the data from existing sources or creates them, and evaluates their relevance and accuracy.
Organizes and Maintains Information:	Organizes, processes, and maintains written or computerized records and other forms of information in a systemic fashion.
Interprets and Communicates Information:	Selects and analyzes information and communicates the results to others using oral, written, graphic, pictorial, or multimedia methods.
Uses Computers to Process Information:	Employs computers to acquire, organize, analyze, and communicate information.
SYSTEMS	
Understands Systems:	Knows how social, organizational, and technological systems work and operates effectively within them.
Monitors and Corrects Performance:	Distinguishes trends, predicts impacts of actions on system operations, diagnoses deviations in the functioning of a system/organization, and takes necessary action to correct performance.
Improves and Designs Systems:	Makes suggestions to modify existing systems in order to improve the quality of products or services and develops new or alternative systems.
TECHNOLOGY	
Selects Technology:	Judges which sets of procedures, tools, or machines, including computers and their programs, will produce the desired results.
Applies Technology to Task:	Understands the overall intents and the proper procedures for setting up and operating machines, including computers and their programming systems.
Maintains and Troubleshoots Technology:	Prevents, identifies, or solves problems in machines, computers, and other technologies.

(SCANS, 1992)

EXHIBIT 8

DEFINITIONS OF SCANS FOUNDATION SKILLS	
BASIC SKILLS	
Reading:	Locates, understands, and interprets written information in prose and documents—including manuals, graphs, and schedules—to perform tasks; learns from text by determining the main idea or essential message; identifies relevant details, facts, and specifications; infers or locates the meaning of unknown or technical vocabulary; and judges the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers.
Writing:	Communicates thoughts, ideas, information, and messages in writing; records information completely and accurately; composes and creates documents such as letters, directions, manuals, reports, proposals, graphs, and flow charts with the language, style, organization, and format appropriate to the subject matter, purpose, and audience; includes, where appropriate, supporting documentation, and attends to level of detail; and checks, edits, and revises for correct information, appropriate emphasis, form, grammar, spelling, and punctuation.
Arithmetic:	Performs basic computations; uses basic numerical concepts such as whole numbers and percentages in practical situations; makes reasonable estimates of arithmetic results without a calculator; and uses tables, graphs, diagrams, and charts to obtain or convey quantitative information.
Mathematics:	Approaches practical problems by choosing appropriately from a variety of mathematical techniques; uses quantitative data to construct logical explanations for real-world situations; expresses mathematical ideas and concepts orally and in writing; and understands the role of chance in the occurrence and prediction of events.
Listening:	Receives, attends to, interprets, and responds to verbal messages and other cues such as body language in ways that are appropriate to the purpose—for example, to comprehend, learn, critically evaluate, appreciate, or support the speaker.
Speaking:	Organizes ideas and communicates oral messages appropriate to listeners and situations; participates in conversation, discussion, and group presentations; selects an appropriate medium for conveying a message; uses verbal language and other cues such as body language in a way appropriate in style, tone, and level of complexity to the audience and the occasion; speaks clearly and communicates a message; understands and responds to listener feedback; and asks questions when needed.

	THINKING SKILLS
Creative Thinking:	Generates new ideas by making nonlinear or unusual connections, changing or reshaping goals, and imagining new possibilities; and uses imagination freely, combining ideas or information in new ways, making connections between seemingly unrelated ideas, and reshaping goals in ways that reveal new possibilities.
Decision Making:	Specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternatives.
Problem Solving:	Recognizes that a problem exists (i.e., that there is a discrepancy between what is and what should be); identifies possible reasons for the discrepancy, and devises and implements a plan of action to resolve it; and evaluates and monitors progress, revising the plan as indicated by findings.
Mental Visualization:	Sees things in the mind's eye by organizing and processing symbols, pictures, graphs, objects, or other information—for example, sees a building from a blueprint, a system's operation from schematics, the flow of work activities from narrative descriptions, or the taste of food from reading a recipe.
Knowing How to Learn:	Recognizes and can use learning techniques to apply and adapt existing and new knowledge and skills in both familiar and changing situations; and is aware of learning tools such as personal learning styles (visual, aural, etc.), formal learning strategies (note taking or clustering items that share some characteristics), and informal learning strategies (awareness of unidentified false assumptions that may lead to faulty conclusions).
Reasoning:	Discovers a rule or principle underlying the relationship between two or more objects and applies it in solving a problem—for example, uses logic to draw conclusions from available information, extracts rules or principles from a set of objects or a written text, or applies rules and principles to a new situation (or determines which conclusions are correct when given a set of facts and conclusions).
	PERSONAL QUALITIES
Responsibility:	Exerts a high level of effort and perseverance toward goal attainment; works hard to become excellent at doing tasks by setting high standards, paying attention to details, working well even when assigned an unpleasant task, and displaying a high level of concentration; and displays high standards of attendance, punctuality, enthusiasm, vitality, and optimism in approaching and completing tasks.
Self-Esteem:	Believes in own self-worth and maintains a positive view of self, demonstrates knowledge of own skills and abilities, is aware of one's impressions on others, and knows own emotional capacity and needs and how to address them.
Sociability:	Demonstrates understanding, friendliness, adaptability, empathy, and politeness in new and ongoing group settings; asserts self in familiar and unfamiliar social situations; relates well to others; responds appropriately as the situation requires; and takes an interest in what others say and do.
Self-Management:	Accurately assesses own knowledge, skills, and abilities; sets well-defined and realistic personal goals; monitors progress toward goal attainment and motivates self through goal achievement; and exhibits self-control and responds to feedback unemotionally and nondefensively.
Integrity/ Honesty:	Recognizes when being faced with making a decision or exhibiting behavior that may break with commonly held personal or societal values; understands the effects of violating these beliefs and codes on an organization, oneself, and others; and chooses an ethical course of action.

(SCANS, 1992)

EXHIBIT 9

ASSIGNMENTS THAT INTEGRATE THE SCANS COMPETENCIES INTO THE CORE CURRICULUM AREAS					
Competency	**English/Writing**	**Mathematics**	**Science**	**Social Studies/Geography**	**History**
Resources	Write a proposal for an after-school career lecture series that schedules speakers, coordinates audio-visual aids, and estimates costs.	Develop a monthly family budget, taking into account family expenses and revenues and using information from the budget plan. Schedule a vacation trip that stays within the resources available.	Plan the material and time requirement for a chemistry experiment, to be performed over a two-day period, that demonstrates a natural growth process in terms of resource needs.	Design a chart of resource needs for a community of African Zulus. Analyze the reasons why three major cities grew to their current size.	Study the Vietnam War, researching and orally presenting findings on the timing and logistics of transporting materials and troops to Vietnam and on the impact of the war on the federal budget.
Interpersonal Skills	Discuss the pros and cons of the argument that Shakespeare's *Merchant of Venice* is a "racist" play and should be banned from the school curriculum.	Present the results of a survey to the class, and justify the use of specific statistics to analyze and represent the data.	Work in a group to design an experiment to analyze the lead content in the school's water. Teach the results to an elementary school class.	Debate the issue of withdrawing U.S. military support from Japan in front of a peer panel. Engage in a mock urban planning exercise for Paris.	Study the American Constitution and role-play the negotiation of the wording of the free states/ slave states clause by different signers.
Information	Identify and abstract passages from a novel to support an assertion about the values of a key character.	Design and carry out a survey and analyze the data in a spreadsheet program using algebraic formulas. Develop a table and a graphic display to communicate the results.	In an entrepreneurship project, present statistical data pertaining to a high-tech company's production and sales. Use a computer to develop the statistical charts.	Using numerical data and charts, develop and present conclusions about the effects of economic conditions on the quality of life in several countries.	Research and present papers on the effect of the Industrial Revolution on the class structure in Britain, citing data sources used to arrive at conclusions.
Systems	Develop a computer model that analyzes the motivation of Shakespeare's *Hamlet*. Plot the events that increase or decrease Hamlet's motivation to avenge the death of his father.	Develop a system to monitor and correct the heating/ cooling process in a computer laboratory, using principles of statistical process control.	Build a model of human population growth that includes the impact of the amount of food available, on birth and death rates, etc. Do the same for a growth model for insects.	Analyze the accumulation of capital in industrialized nations in systems terms (as a reinforcing process with stocks and flows).	Develop a model of the social forces that led to the American Revolution. Then explore the fit between that model and other revolutions.
Technology	Write an article showing the relationship between technology and the environment. Use word processing to write and edit papers after receiving teacher feedback.	Read manuals for several data processing programs and write a memo recommending the best programs to handle a series of mathematical situations.	Calibrate a scale to weigh accurate portions of chemicals for an experiment. Trace the development of this technology from earliest uses to today.	Research and report on the development and functions of the seismograph and its role in earthquake prediction and detection.	Analyze the effects of wars on technological development. Use computer graphics to plot the relationship of the country's economic growth to periods of peace and war. (SCANS, 1993)

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DISCUSSION QUESTIONS FOR LOCAL DISTRICT PROGRAM IMPROVEMENT TEAMS

1. How can the district effectively inform administrators, teachers, parents, and community members about the purpose of education standards and the NH Education Improvement and Assessment Program?

2. To what extent do current programs and practices provide opportunities for *all* students to learn at high levels, including students with disabilities?

3. What changes in curriculum, instruction, and assessment are needed to better prepare students to live and work in the 21st century?

4. Are all administrators, teachers, and specialists familiar with the NH Curriculum Frameworks? If not, how can this be accomplished?

5. What procedures are in place to promote the analysis and use of the NH Curriculum Frameworks to improve curriculum, instruction, and assessment for all students?

6. What is the best strategy for using the results of the NH Educational Assessment Program to evaluate and improve programs? Through what means will parents and community members become familiar with assessment results and what they mean?

7. How can the district involve parents and community members in developing plans and strategies for modifying curriculum, instruction, and assessment?

8. How will the needs of students with diverse needs and abilities be addressed in the district's plan for curriculum improvement?

9. How will the emphasis on standards for *all* students affect current programs and practices for students with diverse needs and abilities? For students with disabilities?

10. How will the shift to content and performance standards affect the assessment practices currently in place? What practices should be modified?

11. What professional development is needed to ensure the effective implementation and use of the NH Curriculum Frameworks? What professional development is needed to help teachers ensure higher levels of learning for all students?

12. Has the district obtained copies of the standards publications produced by the National Standards Projects? Have these resources been shared with teachers and department chairs for review and discussion? What procedures are in place to promote analysis and use of the resources developed by the National Standards Projects?

GLOSSARY OF TERMS USED IN
HIGH STANDARDS FOR ALL: OPPORTUNITIES AND CHALLENGES

TERMS USED TO DESCRIBE STANDARDS

Education Standards describe: (1) expectations for what all students should know and be able to do in today's society; and (2) the conditions that enable students to achieve success. Education standards include content standards, performance standards, and opportunity-to-learn standards.

Content Standards are definitions of what children should know and be able to do. They describe the knowledge, skills, and understandings students should have in particular subject areas in order to attain high levels of competency. Content standards provide guidelines for what schools should teach to ensure that all students are prepared to live and work in the 21st century. (See *Curriculum Standard* below.)

Performance Standards identify the levels a student can achieve in the subject matter defined in the content standards. They set specific expectations for student performance and various levels of proficiency. (See *Proficiency Standard* below.)

Opportunity-to-Learn Standards refer to the conditions in schools that enable all students to have a fair opportunity to achieve the knowledge, skills, and understandings set out in the content standards. They address such areas as curriculum, instruction, assessment, technology and other resources, a safe environment, and professional development.

Curriculum Standard is a term that is often used to describe a content standard. Curriculum Standards identify what students should know and be able to do at different grade levels in the various subject areas.

Proficiency Standard is the term that is used to refer to performance standards in the New Hampshire Education Improvement and Assessment Program. The proficiency standards identify the cumulative learnings to be measured in the state assessment program at the end of the third, sixth, and tenth grades.

TERMS USED TO DESCRIBE CONCEPTS AND PRACTICES

Accountability: a term that has been used in conjunction with mandates for standards and new forms of student testing. It also refers to the school's responsibility to ensure the academic success of all students.

Constructivist Learning: an instructional approach that involves students as active learners, creating their own meaning from prior knowledge and experience, and demonstrating their understanding through real-life learning situations.

Curriculum Frameworks: a set of content standards that describe what students should know and be able to do at different grade levels in a particular subject area.

Educational Equity: equal access to the quality of education necessary for high levels of learning and achievement.

Educational Reform: widespread policy changes at local, state, and national levels aimed at improving the quality of learning and teaching in schools.

Individualized Education Plan (IEP): a written plan developed to meet the needs of students receiving special education services. The plan includes goals and objectives, identifies where the student receives educational services (placement), and describes the types of services provided and how often. The IEP is a legal document mandated by Public Law 94–142.

Performance-Based Assessment: an assessment method that includes multiple performance activities requiring students to demonstrate what they know and are able to do.

School Reform: making changes in such areas as the school organization, allocation of resources, scheduling, staffing, curriculum, instruction, assessment, and staff development that will improve the quality of student learning and the level of student achievement.

Standardized Achievement Test: a commercially developed, norm-referenced test that measures student performance against "norms" of achievement determined previously for a sampling of students at the same grade level. Student scores are based on their responses to multiple-choice questions.

Standards-Based Reform: state and national efforts to improve learning and teaching through the implementation of standards based on consensus about what students should know and be able to do in today's society.

Test Accommodations and Modifications: procedures and options that allow certain students with disabilities or English-as-a-Second-Language students to participate in an assessment. Types of modifications include scheduling modifications, modifications in the setting where tests are administered, changes in the format and/or the use of specific equipment, various options for recording student answers, the modality for giving the test and test instructions, and partial exclusion from sections of tests.

Arts:
National Standards for Arts Education (1994)

Music Educators National Conference
1806 Robert Fulton Drive
Reston, VA 22091

(800) 828-0229; (703) 860-4000; Fax (703) 860-1531

Civics:
National Standards for Civics and Government (1994)

Center of Civic Education
5146 Douglas Fir Road
Calabasas, CA 91302-1467

(818) 591-9321; Fax (818) 591-9330
(202) 265-0529; Fax (202) 265-0710 (Washington office)

English and Language Arts:
Information on the progress of the standards can be obtained from:

International Reading Association (IRA)
800 Barksdale Road
P.O. Box 8139
Newark, DE 19714-8139

(800) 336-7323

Foreign Languages:
Information on the progress of the standards can be obtained from:

American Council on the Teaching of Foreign Languages, Inc.
6 Executive Plaza
Yonkers, NY 10701-6801

(914) 963-8830; Fax (914) 963-1275

Geography:
Geography for Life: National Geography Standards (1994)

National Geographic Society
Geography Standards Project
P.O. Box 1640
Washington, D.C. 20013-1640

(800) 368-2728

History:
National Standards for United States History: Exploring the American Experience (1994)
National Standards for World History: Exploring Paths to the Present (1994)
National Standards for History: Expanding Children's World in Time and Space (1994)

National Center for History in the Schools
University of California, Los Angeles
10880 Wilshire Boulevard, Suite 761
Los Angeles, CA 90024-4108

(310) 825-4702; Fax (310) 825-4723

Mathematics:
Curriculum and Evaluation Standards for School Mathematics (1989)
Professional Standards for Teaching Mathematics (1991)
Assessment Standards for School Mathematics (1993)

National Council of Teachers of Mathematics
1906 Association Drive
Reston, VA 20091-1593

(800) 235-7566 or (703) 620-9840; Fax (703) 476-2970

National Center on Educational Outcomes (NCEO):
Educational Outcomes and Indicators for Students Completing School (1993)

National Center on Educational Outcomes
University of Minnesota
350 Elliott Hall
75 East River Road
Minneapolis, MN 55455

(612) 626-1530; Fax (612) 624-0879; TTY (612) 524-4848

Science:
Information on the progress of the standards can be obtained from:

National Academy of Sciences
National Research Council
2101 Constitution Avenue, NW
Washington, DC 20418

(202) 334-1399; Fax (202) 334-3159

Secretary's Commission on Achieving Necessary Skills (SCANS):
What Work Requires of Schools (1991)
Learning a Living: A Blueprint for High Performance (1992)
Skills and Tasks for Jobs (1992)
Teaching the SCANS Competencies (1993)

U.S. Department of Labor
U.S. Government Printing Office, Superintendent of Documents
Mail Stop: SSOP
Washington, DC 20402-9328

(202) 512-1800; Fax (202) 512-2250

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